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ABSTRACT

Presented is part of a collection of reports related to the teaching of severely handicapped students in the Madison, Wisconsin, Metropolitan School Districts. Services for secondary age students are described in seven reports with the following titles and authors. "The Criterion of Ultimate Functioning and Public School Services for Severely Handicapped Students" (L. Brown, J. Nietupski, and S. Hamre-Nietupski), "A Review of Secondary Level Educational Service Delivery Models for Severely Handicapped Students in the Madison Public Schools" (N. Certo, K. Belmore, T. Crowner, and L. Brown), "Teaching Selected Sex Education and Social Skills to Severely Handicapped Students" (S. Hamre-Nietupski and W. Williams), "A Job Skill Inventory Strategy for Use in a Public School Vocational Training Program for Severely Handicapped Potential Workers" (K. Belmore and L. Brown), "Supermarket Shopping: Teaching Severely Handicapped Students to Generate a Shopping List and Make Purchases Functionally Linked with Meal Preparation" (R. Nietupski, N. Certo, I. Pumpian, and K. Belmore), "Making Purchases: A Functional Money-use Program for Severely Handicapped Students" (N. Certo and B. Swetlik), and "Teaching Severely Handicapped Students to Function as Dishwashers in Simulated and Natural Work Settings" (R. Schwartz). (IM)

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Madison's Alternative for Zero Exclusion: Papers and Programs Related to Public School Services for Secondary Age Severely Handicapped Students

Volume VI: Part 1

Lou Brown, Nick Certo, Ken Belmore and Tim Crowner

November, 1976

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TABLE OF CONTENTS

Acknowledgements i

Overview ii

The Criterion of Ultimate Functioning and Public School Services for Severely Handicapped Students 1
Lou Brown, John Nietupski, and Susan Hamre-Nietupski

A Review of Secondary Level Educational Service Delivery Models for Severely Handicapped Students in the Madison Public Schools 13
Nick Certo, Ken Belmore, Tim Crowner and Lou Brown

Teaching Selected Sex Education and Social Skills to Severely Handicapped Students 56
Susan Hamre-Nietupski and Wes Williams

A Job Skill Inventory Strategy for Use in a Public School Vocational Training Program for Severely Handicapped Potential Workers 143
Ken Belmore and Lou Brown

Supermarket Shopping: Teaching Severely Handicapped Students to Generate a Shopping List and Make Purchases Functionally Linked with Meal Preparation 220
Rosanne Nietupski, Nick Certo, Ian Pumpian and Ken Belmore

Making Purchases: A Functional Money-Use Program for Severely Handicapped Students 271
Nick Certo and Barbara Swetlik

Appendix A:
Teaching Severely Handicapped Students to Function as Dishwashers in Simulated and Natural Work Settings 345
Richard Schwartz

Technical and Clerical Acknowledgements 419

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The positions vacated by Drs. Tilley and McGrew have been filled by capable professionals. We would like to welcome Dr. Donald Hafeman, Assistant Superintendent for Instructional Services and Dr. Lee Greunewald, Director of Specialized Educational Services. There is little doubt that under their leadership the Madison Metropolitan School District will continue its quest to provide the most effective educational services possible to severely handicapped students.

It should be emphasized that without the direct and sustained support of Dr. Douglas Ritchie, Superintendent, Madison Metropolitan School District, many of the programs and services described in this book would not have been possible. We are deeply indebted to his intense commitment to Career Education for all students, but we are particularly appreciative of his professional and personal support for Career Education for severely handicapped students.

Finally, it should be noted that Nancy Dodd of the University of Montana functioned as a technical editor and as a grammatical inspiration. If the contents are presented in a manner that can assist in the development of effective instructional services for severely handicapped students, Nancy Dodd should be thanked.

OVERVIEW

This book is an attempt to report on the activities of many persons as they have attempted to teach severely handicapped students in the Madison Metropolitan School District. There is little one can do to express accurately the frustrations, joys, failures and successes experienced as we discover more and more about what severely handicapped students can learn. Each year we sense increased excitement as staff and parents discover ways to enhance the functioning levels of even the most handicapped of our students.

As our ability to program for students expands across persons, settings and materials, we are learning more and more about the ability of severely handicapped students to perform competently in complex community environments. We have learned that the severely handicapped students in precarious health with minimal motoric abilities can be taught to locomote and communicate; we have learned that severely handicapped young adults will ultimately function effectively in competitive jobs; and we have learned that expectations once held only for mildly handicapped students can now be held for severely handicapped students.

In the process of learning about our students we have also learned a great deal about ourselves. Most importantly, we have learned to work cooperatively in spite of different training and disciplinary missions and we have learned that we cannot rely on any one instructional or organizational "model" to generate our strategies.

In an attempt to meet the specific needs of our readers, MAZE Volume VI has been organized into the following three parts:

Part 1:

Madison's Alternative for Zero Exclusion: Papers and Programs Related to Public School Services for Secondary Age Severely Handicapped Students

Part 2:

Madison's Alternative for Zero Exclusion: Papers and Programs Related to Teaching Reading Skills to Severely Handicapped Students

Part 3:

Madison's Alternative for Zero Exclusion: Toward an Integrated Therapy Model for Teaching Motor, Tracking and Scanning Skills to Severely Handicapped Students

We hope that this information will be helpful as you continue to work toward improved educational services for severely handicapped students.

L.B.
N.C.
K.B.
T.C.

The Criterion of Ultimate Functioning and Public School Services for Severely Handicapped Students[1]

Lou Brown, John Nietupski, and Susan Hamre-Nietupski
University of Wisconsin and Madison Public Schools[2]

Part I

Positions and Assumptions

Not too long ago there were few, if any, educational services for mildly retarded or mildly handicapped students in American public school systems. Self contained schools and self contained classes within regular schools were generated and proliferated soon thereafter. For years self contained schools and self contained classes within regular schools were considered the most efficacious models in which to provide educational services to mildly handicapped students.

In 1968 Dunn published his now famous article, "Special Education for the Mildly Retarded -- Is Much of It Justifiable? ". There Dunn crystalized the judgements, suspicions, and feelings of many persons in and out of special education -- namely, that the placement of mildly handicapped students into self contained schools and self contained classes was unduly restricting their general development and not preparing them to function adaptively in complex, integrated, community based postschool environments.

In the past the predominant educational service delivery models generated for the majority of severely handicapped students in this country were (a) placement in large self contained residential facilities (institutions), (b) placement in self contained schools, (c) maintenance at home, and (d) the use of private facilities such as churches or facilities supported by private associations concerned with providing services for retarded citizens.

Within the past 5 years, due to encouraging judicial, executive, and legislative reactions to the advocacy activities of many enlightened parents and other persons and groups, formerly rejected severely handicapped students are now being served in community based public schools. Unfortunately, it seems that the overwhelming majority of severly handicapped students now in public schools are being served in self contained facilities. Self contained facilities will ultimately be rejected for the same reasons that self contained programs within regular schools for mildly handicapped students have been and are being rejected.

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[1] This chapter was supported in part by Grant No. OEG-0-73-6137 to the University of Wisconsin-Madison from the Department of Health, Education, and Welfare, U.S. Office of Education, Bureau of Education for the Handicapped, Division of Personnel Preparation, Washington, D.C., and in part by funds from Federal Contract No. OEC-0-74-7993 to the Madison Public Schools.

[2] This paper is a chapter that will appear in a book entitled, Hey, don't forget about me: New directions for serving the severely handicapped. Reston, VA: Council for Exceptional Children. In press. Duplication of or reference to the contents of this chapter must be approved by the Council for Exceptional Children.

There is no doubt that the spirit of the times requires that severely handicapped students be allowed to grow within the least restrictive developmental environments. Placement in large multipurpose institutions, sustained maintenance at home, and/or sustained placement in self contained classes within segregated schools is generally restrictve. The community must create other more educationally tenable developmental environments.

Severely handicapped students should be placed in self contained classes in regular schools. Severely handicapped students should eat, recreate, assemble, travel, ambulate or be ambulated, play, read, study, and learn with students of all developmental functioning levels. Why? Because severely handicapped students will no longer be locked up in isolated dehumanizing institutions; they will no longer be hidden in homes; they will no longer be rejected from public schools; they will no longer be sheltered from society. They have the right to be visible, functioning citizens integrated into the everyday life of complex public communities.

The Logic of Homogeneity

One of the most pervasive, and in our view questionable, philosophic assumptions in our society is that homogeneity is a generally positive objective that should be approximated if not realized. This general quest to cluster according to similarities, to stratify on the basis of differences, and to realize uniform compositions is referred to here as the logic of homogeneity.

Discernible manifestations of the logic of homogeneity are prevalent in many aspects of our society. Predetermined efforts have been made to group according to skin color, family heritage, verbal accent, sex, religious affiliation, military rank, professional or paraprofessional status, wealth, and academic degree ,to name only a few. These manifestations are often based on such assumptions as (a) people do better and are happier if they are with their own kind, (b) people who are different than us do not like us, (c) our cultures are too different, (d) if God wanted us to be together, She would have arranged it, and (e) overcoming the communication problem is not worth the effort.

In education generally there have been many manifestations of the logic of homogeneity. For example, students have been "tracked" within and between schools and classes, males and females aave been stratified in "health" and physical education classes, and parochial schools and athletic leagues are prevalent.

In special education, the logic of homogeneity abounds to the point of absurdity. Special educators have established self contained classes, self contained schools, groupings for the orthopedically handicapped, the blind, the mildly retarded, the emotionally disturbed, and the trainable mentally retarded, and on and on ad infinitum. By affording credence to the presumed positive properties of the logic of homogeneity within educational systems, educators have systematically, although inadvertently, impeded many handicapped and nonhandicapped students from acquiring the skills, values, and attitudes necessary to function in heterogeneous multifaceted and interpersonally complex adult environments.

Many persons concerned with providing developmental services to mildly handicapped students have rejected, or are now in the process of rejecting, the basic tenets of the logic of homogeneity. Those persons concerned with providing the best possible educational services to severely handicapped students should do the same. However, it should be noted and emphasized that certain kinds ofhomogeneous goupings in selected settings for selected purposes may be educationally, medically, and socially tenable. That is, to reject the logic of homogeneity completely is probably as irrational as to absorb it completely. The point is that the logic of homogeneity as it relates to the provision of educational services for severely handicapped students is generally negative. Homogeneity must be scrutinized carefully and rejected in favor of heterogeneity whenever possible.

The Logic of Heterogeneity

The logic of heterogeneity leads to the position that persons of differences or dissimilarities in almost all aspects of existence should interact. Most postschool community based domestic, vocational, and recreational environments are fundamentally heterogeneous in nature. If severely handicapped students are to be expected to function effectively in heterogeneous community environments, as many preceding developmental experiences as possible should represent that heterogeneity. Every time educators make a decision affecting the longitudinal development of a severely handicapped student, they must seek manifestations of the logic of heterogeneity.

If educators had ascribed to the logic of heterogeneity in the past, they would not now be confronted with ways in which to dismantle "state schools", self contained public schools, and other forms of segregated instructional settings. At this time it appears that one of the most realistic manifestations of the logic of heterogeneity would be to encourage comprehensive and longitudinal involvement with nonhandicapped persons in a diversity of constantly changing community environments.

Degrees of Instructional Inference

Most teachers assume varying degrees of instructional inference when relating to students, regardless of their functioning levels. Generally, the less handicapped the student, the higher the degree of inference regarding the performance of that student. For example, teachers of nonhandicapped students often teach the rational counting of wooden pegs. After a student has performed at criterion on this task, it is usually inferred that the student can also rationally count eating utensils, money, and completed work units. This, of course, represents a relatively high degree of instructional inference. Implicit in relatively high degrees of instruction inference is the assumption that from specific training on circumscribed or core tasks, students will abstract the critical factors, strategies, rules and concepts from the training environment,and apply them in new and varied environments.

At this stage in the evolution of instructional technology, critical factor strategies can be afforded little educational credence. That is, to our knowledge, it has not been empirically demonstrated that the teaching of a few critical skills has resulted in substantial increases in the general developmental functioning levels of many severely handicapped students. Thus, teachers of severely handicapped students can rarely, if ever, infer that because a student performs a particular skill in an artificial setting he or she can also perform that skill in other more natural settings.

Unfortunately, it may be necessary to teach severely handicapped student all the skills, concepts, actions, and responses required for adaptive performance in all the postschool environments to which they will be exposed. Such an instructional possibility is referred to here as a zero degree inference strategy . That is, no inferences are made that training to a criterion on any task in one situation will result in criterion performance in similar but different situations requiring similar or slightly different actions. Each time a situation changes for a severely handicapped student, it will be necessary to empirically verify that he or she can perform the skills required by that new situation.

Occasionally it has been demonstrated that severely handicapped students can acquire relatively complex skills. However, rarely have severely handicapped students, taught to perform complex skills in artifical instructional settings, been able to perform relevant versions of those skills in natural community settings. Thus, until such time that critical factor strategies are demonstrated empirically effective in developing the skills necessary for severely handicapped students to perform a variety of skills in a variety of community settings, with a variety of persons, language cues, and materials, it appears that approximations of zero degree inference strategies offer higher probabilities that students will be able to perform acceptably in less restrictive environments as adults.

Educational Service Characteristics

As large numbers of severely handicapped students enter into less and less restricting community environments, the current performance differences between them and their nonhandicapped age peers will be quite dramatic. Initially such dramatic differences will engender fear, frustration, rejection, and hopelessness in many sincere and well meaning individuals, both in and out of the human services movement. In time, the initial negative emotional reactions will abate and the collective consciousness and energies of the community will be redirected toward providing the best possible developmental services.

In some school districts attempts will be made to maintain as much physical distance as possible between severely handicapped and nonhandicapped citizens: Old school buildings will be opened or renovated and only severely handicapped students will be assigned to them; new school buildings will be constructed under the guise that the students of concern are in need of "special A, B, or C". However, as educators realized when they attempted to provide specialized services to mildly handicapped students, segregating procedures impede achievable approximations of human potential.

At least one major question should be addressed: Over long periods of educational time, what are some of the fundamental characteristics of the most creditable educational services based upon the best available information? The position taken here is that in addition to the constant quest to realize the criterion of ultimate functioning and to manifest the logic of heterogeneity, there are at least three additional factors that must be considered basic characteristics of educational services for severely handicapped students.

First, specialized educational services should be provided as soon after birth as possible. The reasons for early educational intervention as it relates to the involvement, acceptance, and training of parents, and longitudinal human development are obvious. The point of emphasis here is that if any child is identified as, or is at risk of becoming, severely handicapped on Monday and a public school contract is not made until Wednesday, it is one day too late.

Second, educational services for severely handicapped students must be comprehensive and coordinated toward educational development. Severely handicapped students manifest a variety of developmental delays and require at least the expertise of physical, occupational, language, and medical therapists, persons capable of providing visual and auditory assessment and habilitation, as well as the general resources of the educational community. On the other hand, it is also obvious that, although the multidisciplinary team is a "sound good" phrase, such a concept rarely produces coordinated and empirically verified educational outcomes. Indeed, a challenge educators must confront and meet is the design of systems to both articulate and harvest the contributions of varied persons and disciplines and filter the persons and/or disciplines that detract from the development of empirically tenable educational services.

Third, the services that are provided for severely handicapped students must be longitudinal as opposed to episodic. An episodic intervention refers to the brief involvement of aprofesional in the developmental lifestyle of an individual. There are thousands of instances when episodic interventions are empirically tenable, particularly when nonhandicapped persons are the recipients of such interventions, For example, if an individual contracts an infection, he or she can spend a few minutes with a physician, receive an injection and the problem is solved. If a muscle around an eye contracts, one can visit an optometrist and after a brief examination and a change of glasses, the problem is solved. The availability and functional validity of episodic interventions are perhaps some of the most positive aspects of this society.

The general functional invalidity of episodic interventions is a critical source of frustration for parents and professionals who relate to severely handicapped students. Parents can take their severely handicapped child for a vision examination, but in fact the professional may not be able to provide a valid diagnosis and an empirically verifiable prescription. As a result, many severely handicapped students function with uncorrected visual problems. A longitudinal approach to the problem, although requiring more time and money, obviously is warranted. The sustained coordination and ingenuity of many persons will be required before the most effective visual prescription can be empirically determined.

A similar situation exists when parents take their severely handicapped children to the standard multidisciplinary team of experts. About 2,000 professionals representing 1,400 disciplines at an enormous cost spend from 30 to 37 minutes each with a severely handicapped student. After this series of episodic interventions, programmatic recommendations are then made to parents and teachers. Generally, few followup efforts are attempted to ascertain the empirical value of the recommendations and/or to suggest changes in programming based on the progress of the child. The educational outcomes are unfortunately predictable.

The Criterion of Ultimate Functioning

Large multifailure residential facilities and other segregated facilities for adult severely handicapped citizens will be replaced by complex, integrated, developmentally facilitative community models. Thousands of severely handicapped citizens will attend church, shop, wait in the offices of physicians, ride public buses, wash dishes, attend movies, use restrooms, cross streets, and cheer at football games with less handicapped and nonhandicapped citizens. If severely handicapped adult citizens are to function effectively in heterogeneous community environments, both handicapped and nonhandicapped citizens will require longitudinal and comprehensive exposure to one another. Such exposure will enhance the probability that the skills, attitudes, and values so necessary for tolerance, understanding, and absorption will be realized.

The criterion of ultimate functioning refers to the ever changing, expanding, localized, and personalized cluster of factors that each person must possess in order to function as productively and independently as possible in socially, vocationally, and domestically integrated adult community environments. Since severely handicapped citizens will ultimately function in settings which contain less handicapped and nonhandicapped citizens, the majority of the developmental environments to which most severely handicapped citizens are now exposed will require substantial changes. Longitudinal segregation, whether manifested in residential institutions or self contained schools, homes or classes will not culminate in the realization of the criterion of ultimate functioning.

The position taken here is that the requirements of the criterion of ultimate functioning should be the standards by which educational activities are judged as they relate to severely handicapped students. Any activity, however episodic or apparently inconsequential, must be related to the criterion of ultimate functioning, or that activity should be terminated. Thus prior to the initiation of any interaction with the severely handicapped students we must at least ask the following questions:

1. Why should we engage in this activity?
2. Is this activity necessary to prepare students to ultimately function in complex heterogeneous community settings?
3. Could students function as adults if they did not acquire the skill?
4. Is there a different activity that will allow students to approximate realization of the criterion of ultimate functioning more quickly and more efficiently?
5. Will this activity impede,restrict, or reduce the probability that students will ultimately function in community settings?
6. Are the skills, materials, tasks, and criteria of concern similar to those encountered in adult life?

In the following pages attempts will be made to communicate the idea that many educational assumptions and practices currently in operation or in proposal, although appearing educationally sound and expedient, actually interfere with the realization of the criterion of ultimate functioning.

Part II

Instructional Practices

For the past several years we have made attempts to develop instructional programs for severely handicapped students in community based public school zero exclusion educational settings. In addition, we have had the opportunity to visit many similar educational programs around the nation in an attempt to both provide and receive technical assistance. As a result of our experiences we have modified many of our attitudes, techniques, assumptions, and instructional practices as they relate to educational strategies that are typically used or advocated for use with severely handicapped students.

As we tried to relate many of our instructional practices to the standards of the criterion of ultimate functioning, many inadequacies and failures surfaced. In this section we will describe some of the instructional practices we formerly recommended for general use, some of the difficulties we have encountered with those practices, and some of the adaptations we are currently entertaining.

The Relative Value of One-to-One Instructional Arrangements

It has often been proposed that severely handicapped students need one to one instruction. Undoubtedly, one to one instruction has educational validity. In fact, all children, whether or not they are handicapped, are probably in need of, and should receive, the undivided attention of an adult during some portion of their school day. The salient issue here is related to the proportion of the school day that should be consumed with one to one instructional interactions as opposed to larger ratio interactions.

It is generally assumed that the more one to one instruction a student receives, the more educational advancement can be expected in the long run. However, after a considerable number of failure experiences over a long period of time, we have rejected that assumption. It now seems reasonable to provide fewer one to one instructional arrangements and more arrangements that involve (a) goup instruction, (b) clustered individualized instruction in which one teacher engages in individualized interactions with a cluster of three, four, or five students, and (c) instruction that generates adaptive interstudent interactions in the absence of the direct involvement of persons in authority.

Obviously, one to one instruction is enormously expensive in terms of personnel, time, and money. If the only issue was expense and not educational development, educators would be morally bound to provide such instruction. However, in addition to expense there are other more significant educational reasons for minimization of one to one instructional arrangments.

First, one to one instructional arrangements typically include a teacher providing a cue to which a student is required to respond. When the criterion of ultimate functioning is considered, extensive longitudinal use of teacher cue/student response paradigms prevents or interferes with the acquisition of self initiation skills. Educators have inadvertently developed students who will perform well if a specific teacher provides certain cues but who fail to perform in other settings, with other cues ar other persons. Thus, one potentially negative outgrowth of the extensive use of one to one instruction in which teachers provide cues to act is that students become too stimulus bound to the cues provided by their teachers. Instruction utilizing additional arrangements may function to prevent such problems and thus assist students prepare to function in a variety of adult environments.

Second, one to one instruction where teachers provide cues to students and where students become bound to those cues impedes the development of adaptive interstudent interactions. Time and time again situations are reported in which students play a game effectively with a particular teacher, parent, or university student in training, but cannot or will not play with an age or developmental peer. This, of course, is a developmentally unsound outcome in that the student is supposedly preparing to ultimately function in an environment where a substantial amount of his life will be spent relating to, enjoying, and learning from and with a variety of age and developmental peers.

Third, it is often hypothesized that a particular student is "not ready for group instruction" due to a variety of medical, behavioral, and educational deficiencies. Thus, teachers often enter into one to one instructional arrangments assuming that the skills the student develops in one to one settings are necessary for, and will culminate in, adaptive performance in group settings. In a large number of situations this has proved to be a false assumption. Indeed, just as teachers learn to function in one to one instructional settings and malfunction in group instructional settings, so do students. The strategies that we are attempting to develop currently require that all students, no matter that their level of functioning, receive some instruction in group instructional arrangements.

There seem to be at least two additional difficulties that might arise from the overuse of misuse of one to one instructional arrangements. First, teachers who develop one to one instructional skills often do so at the expense of the development of group instructional skills. In the past, when attempting to train teachers to work with severely handicapped students, we would begin the training sequence by placing university students in one to one situations on the wards of a residential institution. Often this was an ineffective training experience even though many trainees became quite effective teaching one child to perform one skill. Many of the teaching skills necessary to do so were incompatible with the clustered individualized teaching of groups of 3,4 or 5 students in public school classrooms who manifested varying degrees of behavior management problems and who required different instructional materials, interaction styles, and response consequences.

Second, in many eduational settings in which one to one instruction is emphasized, the situation ultimately arises in which (a) there are more students than teachers and (b) the students do not have appropriate self regulated play, work, or social skills. Thus, an unfortunately typical scene is to witness a teacher, an aide, a parent, and a practice teacher working in one to one instructional arrangements with four students on one side of the room, while the remaining students are restrained to chairs, roll on floors, self stimulate, or self mutilate in other parts of the room or "watch TV".

Obviously there are a substantial number of technical problems related to larger ratio instructional arrangements. However, it appears more developmentally tenable to this point to attempt to generate instructional procedures that solve the problems that accrue from larger ratio arrangements rather than to revert to an inordinate use of one to one instruction.

Group instruction, as the term is used here, refers to a teacher attempting to teach more than one student at a given time in the same manner using the same words, materials, and so on. In our experience, group instructional arrangements are often inefficient in that (a) teachers tend to teach to the more responsive students in the group, (b) it is extremely difficult to evaluate individual progress in that it is quite cumbersome to verify that each student is performing the skills of concern, and (c) it is the rare group of severely handicapped students who progress through educational curricula at the same pace. On the other hand, the limited and carefully selected use of group instructional arrangements has enormous longitudinal practical value. Sustained attempts must be made to insure that students acquire the skills necessary to secure information from goup arrangements.

In summary, the criterion of ultimate functioning requires that individuals perform in complex community settings which demand multiple person cooperative and interactive skills. Extensive use of one to one instructional arrangements over long periods of time results in few of these skills. Thus, where we once recommeded the extensive use of one to one instruction, we are now recommending that students also receive a substantial amount of instruction in group and clustered individualized arrangements and in arrangements that allow them to teach and learn from each other. The amounts of time allocated per day to each arrangement, of course, should be determined empirically.

The Use of Repeated Practice Strategies

Rppeated practice strategies are teaching strategies that generate large numbers of direct instructional trials in relatively short periods of time. As severely handicapped students typically require relatively large numbers of direct instructional trials in relatively short periods of time in order to attain criterion performance on many tasks, repeated practice atrategies are of enormous practical value and their proliferate use is understandable.

There are probably thousands of tasks that have been taught through repeated practice strategiesto handicapped and nonhandicapped students. Solving simple mathematical equations, rote counting, differentiating colors, recognizing polar opposites, and verbally labeling flash cards are but a few examples. Repeated practice strategies might be most useful when it is important for a particular skill to be taught, but there is an insufficient amount of naturally occurring instructional trials during the school day. For example, assume that a teacher intends to teach a student to put on and remove cold weather gloves. Under natural instructional conditions, the teacher may be able to provide the child with three or four teaching trials per day. However, under artificial training conditions the teacher might arrange for 20 or 30 repeated practice teaching trials per day until the child reaches criterion in the task in the repeated practice arrangement. Subsequently, the student can be taught to perform the skill under natural life conditions. In this situation, and in many similar situations, ther are relatively few differences between the actions taught under repeated practice arrangements,and the actions required in the natural environment.

Repeated practice strategies have been and will continue to be used to teach many valuable skills to severely handicapped students. However, alghough there is little that is inherently questionable about repeated practice strategies, the profiferate use and subsequent teacher reliance upon such strategies tends to foster the use of artifical instructional materials, tasks, and settings and the formulation of questionable educational objectives and performance criteria.

In an attempt to minimize or avoid the potentially deleterious effects associated with the sustained overuse of repeated practice strategies, at least three alternatives seem reasonable. First, teachers can include a substantial number of functional, as opposed to artificial, tasks in the curriculum. Second, teachers initially can utilize artifical tasks and criteria and then teach students to perform the developed skills in natural settings. For example, touching polar opposites as they are presented via a teaching machine can be considered tenable only if criterion performance on that artificial task is followed by empirical demonstrations of the functional use of polar opposites in natural settings. Third, teachers can increase the number of single person and multiple person peer game skills. Games are crucial educational vehicles in that they are generally more intrinsically interesting than two dimensional two choice discrimination tasks requiring responses. They can be used to develop and maintain valuable interstudent language, reading, math, and social skills. Finally, they can enhance the probability of performance across places, persons, and materials in that students can readily engage in games in settings away from school. Again, the point here is that criterion performance of a skill as a result of a repeated practice strategy in an artificial setting does not often result in the acceptable performance of that skill in natural environments.

Consistent Inconsistency or Systematic Variation

Teachers have often been confronted with a student who does well interacting with one adult, but does not interact with others. For example, Johnny may perform for Ms. Jones, but not for anyone else. It might be argued that since it is crucial for Johnny to perform, Ms. Jones should be encouraged to work with him until some time in the future. However, when this strategy is referenced against the standards of the criterion of ultimate functioning, the potential deleterious effects become readily apparent. In heterogeneous adult environments, citizens are required to respond to, and in the presence of, a wide variety of persons. By arranging such circumscribed actions and reactions, a teacher is systematically impeding the development of the skills necessary for independent survival in heterogeneous adult communities. In an attempt to minimize the development of such circumscribed interactions, many strategies are no doubt possible. However, there are several strategies that seem to offer reasonable promise.

Each time a student is taught a functional skill or game, it might be required that the skill be performed (a) in reaction to, or in the presence of, at least three different persons, (b) in at least three different natural settings, (c) in response to at least three different sets of instructional materials, and (d) to at least three different appropriate language cues. To illustrate, assume that a student is taught to play a game with a ball in a classroom. The teacher then must either teach the student to, or empirically verify that the student can, play ball (a) at the playground, (b) at home with a peer, a parent, and a sibling, (c) in response to such verbal language cues as "throw it", "hit me", "zip it over here", and (d) with basketballs, baseballs, and colored plastic balls.

The verbal language cue component of any strategy is particularly crucial in that teachers often inform parents that a student reached criterion on a specific task. Parents often attempt to induce the performance of that skill at home, but fail. Further analysis often reveals that the teacher use one verbal language cue (e.g. "Go find your") and the parents used another (e.g. "Get me"). Attempts to standardize the verbal language cues so that both the teacher and the parents use exactly the same words are longitudinally questionable in that in heterogeneous adult community environments different people use many verbal language cues that require the same response. The standardization of variation on the other hand, may enhance performance across verbal language cues. Thus, when a student is taught to perform specific skills in response to a particular verbal language cue, the task should not be considered mastered until the student performs the task in response to the other verbal language cues in his natural environment that require the same response.

It seems that teachers have several available options to insure that students perform accurately and consistently to varying cues. For example, assume that four verbal language cues are used in the natural environment in relation to a particular skill. A teacher could use a consecutive strategy and teach appropriate responding to the first, second, third and fourth verbal language cues respectively until the students respond appropriately to all four cues when they are presented randomly. A teacher could use a concurrent strategy in which students receive training on all four cues at the same time until they respond appropriately to all four cues when they are presented randomly. A teacher could used a combined or a different strategy. Regardless of the particular strategy, students must be prepared to perform in complex natural environments that are constantly varying and evolving. Thus, rather than support the orientation that the instructional environments of severely handicapped students should be standardized, we are suggesting that their instructional environments should be "consistently inconsistent" or systematically varied.

Toward Naturalized Curricula and Schools with Small Permeable Walls

The instructional materials, tasks, consequences, objectives, and criteria to which severely handicapped students are exposed in educational settings should resemble those that students will encounter and need in community domestic, social, leisure, and vocational settings. However cumbersome, time consuming, inconvenient or expensive it may be to do so, the pegs, felt squares, pictures of money, tokens, pictures, edible consequences and many, if not all, of the commercially available kits and irrelevant paper and pencil tasks should be faded out. Real money, real streets and cars, real people, real stores, real sounds and smells, real tools and objects, real group homes, real world settings, real appliances and utensils, real motor skills, and real ridicule, rejection, and disappointment must replace them. An empirically verifiable naturalized life space curriculum designed to teach the skills required in heterogeneous community environments is the order of the day.

There are at least three major reasons why curricula for severely handicapped students should be naturalized. First, artificial materials and settings seldom provide students with the information needed to solve practical problems in natural settings. Because a severely handicapped student can solve the problem "2+ __ =4" on a commercial worksheet in a classooom, it does not necessarily follow that he will be able to respond correctly to the problem in which four people will be eating dinner and there are only two chairs at the table. Crucial information contained in the latter functional task is not present in the former artificial paper and pencil task.

Second, the actions and criteria required by many of the most popular artificial tasks and materials are often not the crucial actions required in more functional environments. Artificial tasks and materials often require touching, marking, and verbally labeling actions. Functional tasks, materials, and criteria, on the other hand, require picking up, getting, showing, assembling, distributing, responding motorically to printed stimuli at community accepted rates, latencies, and durations. Certainly there are situations in which it is feasible to start with rudimentary movements, limited to isolated instructional sequences, and artificial materials, but education should never stop there. It should not stop until the teacher has demonstrated empirically that these students can function as independently as possible in the most open, positive, and actualizing environments imaginable.

Third, since we are preparing students to function in heterogeneous adult environments, most of the necesaary training experiences should be conducted in extra-school building environments. The school as manifested by a building may be necessary, but it is not sufficient as the major or only facility needed to prepare severely handicapped students to reach the criterion of ultimate functioning. These students need schools with small permeable walls. Instead of bringing sheltered workshop tasks into a school workshop, instructors should disband the school workshop and teach the students the required skills at real workshops. Instead of using a"home economics room" in a public school, teachers should use real natural homes, foster homes, and group homes as the locations for the development of crucial self help, grooming, social and domestic maintenance skills. Similarly, other vocational, shopping, service procurements, and leisure skills should be taught during and after traditional school hours at real bowling alleys, theatres, stores, restaurants, swimming pools, office buildings, laundries, and motels.

Perhaps it is appropriate here to relate to the relative merits of simulated training experiences. There is no doubt that criterion performance on simulated tasks can be a valuable adjunct to the development of many crucial developmental skills. In fact, under certain circumstances it may be construed as almost mandatory that simulated experiences be utilized (bus riding and street crossing seem reasonable examples). However, severely handicapped students do not allow the degree of inference necessary to assume that criterion performance on a simulated task guarantees criterion performance in the environment in which the skill will ultimately be required. There can be no substitute for empirical verification of the performance of a skill in the natural environments in which the skill is required.

If we now had available to use the most tolerant of all possible communities, an unlimited budget, he collective use of the best professionals in existence, all necessary enabling legislation, the most advanced service delivery models, ideal parents, and excellent medical care, we still would not be able to provide severely handicapped students all needed services. The skills of our students are limited by the information we have within our grasp. The information we have within our grasp is tragically meager. If substantial improvements in services to severely handicapped students are to accrue, new information must be generated. As educators we must realize that we are infants in this area, that most if not all of our pet theories must be revised, and that we need to expose our ideas and practices to the scrutiny of all. We must now confront our weaknesses, failures, and insecurities and set about the long hard task of demonstrating, rather than inferring, the best possible services for a most deserving group of citizens.

Dunn, L.M. Special education for the mildly retarded -- Is much of it justifiable? Exceptional Children, 1968, 35, 5-22

A Review of Secondary Level Educational Service Delivery Models for Severely Handicapped Students in the Madison Public Schools[1]

1969-1976

Nick Certo, Ken Belmore, Tim Crowner and Lou Brown[2]
Madison Public Schools and University of Wisconsin[3]

> "...twenty years of schoolin' and they put you on the
> day shift, look out kid, they keep it all hid..."
> B. Dylan, Subterranean Homesick Blues, 1965, BMI.

During the past ten years there has been a dramatic increase in public school educational services for severely handicapped students. Educational service delivery models are being devised, longitudinal curricular sequences are being attempted and instructional programs focusing upon a wide range of traditional academic and non-academic skills are being developed. Most of these laudable efforts are, however, oriented toward severely handicapped students from infancy through late elementary school age. Unfortunately, relatively little effort of a longitudinal, systematic and comprehensive nature has been devoted toward creating specialized educational services for secondary age (or level) severely handicapped students. At the present time a dire need exists for viable secondary educational service delivery and curricular models for severely handicapped late adolescent and young adult students.

Chronological age is only one criterion for determining appropriate delivery models for educational services. Many essential components of service and curriculum models generated for younger severely handicapped students are applicable to older severely handicapped students. In addition, the problems of providing educational services to secondary-age severely handicapped students may be similar to those confronted in regular secondary education. Educational service delivery problems do, however, differ between younger and older severely handicapped students and between severely handicapped and non-handicapped secondary students. Generally these differences relate primarily to distinctions in the choice of tasks and instructional settings, rather than in differences in the skill clusters that need to be acquired. For example, regardless of age, many severely handicapped students will need to learn to track moving objects or scan stationary arrays. For younger severely handicapped students, visually tracking the movement of a ball within a play situation might be an appropriate task. For secondary-age severely handicapped students needing to acquire age-appropriate leisure skills, it might be more relevant and functional to teach visual tracking skills while following the movement of a ball when learning to operate a pinball machine. The objective of teaching visual tracking skills remains the same, but the task changes for many practical reasons. In regular secondary classrooms non-handicapped students are taught the equivalence between various amounts of money and purchasable goods and services. Teachers then infer that students will use those "in-school skills" in natural settings. Rarely would one expect to see a teacher instructing students from a regular high school on the fine points of grocery shopping at an actual community supermarket. With secondary-age severely handicapped students, teaching or verifying purchasing skills within natural community contexts is mandatory.

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[2] Appreciation is expressed to Ms. Nancy Dodd, University of Eastern Montana for her contribution to the final version of this manuscript.

[3] A revision of this paper will be published in Education and Training of the Mentally Retarded.

This paper provides a cursory review of several parameters of secondary education models for severely handicapped students that have been used in the past and are currently in operation within the Madison Public Schools. Although Madison is a small urban community of approximately 180,000 residents, the possibility exists that the essential issues and information presented will be of benefit to other school systems of different size. Other school systems addressing the issue of secondary education for severely handicapped students may, therefore, find such a review relevant.

For organizational purposes three, non-mutually exclusive, secondary service delivery models will be presented on a historical continuum. The first (Phase I) focuses on the earliest model employed, a totally self-contained elementary school model[4]. The second (Phase II) relates to a traditional secondary level departmentalized model and the third (Phase III) is concerned with the components of a current model which can be described as an interactive public school-community model. A fourth model (Phase IV) is just beginning. It is concerned with an interactive public school-community approach that utilizes self contained classrooms within regular middle and senior high schools. Space does not permit an explanation of the four models in their intricate entirety. Thus, three models will be described in reference to what in retrospect appears to have been their more salient potential advantages and disadvantages from student, parent, teacher and administrative perspectives. The fourth model will be described only briefly.

Phase I

Self-contained classes within a self-contained school: The single teacher-single class model.

In the fall of 1969, the Madison Public Schools entered into a relationship with the University of Wisconsin in an attempt to develop systematic and comprehensive educational services for severely handicapped students. This relationship was manifested primarily at Sunnyside School, a self-contained, two story school for severely handicapped students. Sunnyside school was endowed with most of the trappings of educational services for the severely handicapped of the time, including its optimistic name, and a building previously rejected for other uses by the school administration.

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[4] By self-contained school the authors are referring to a school whose sole function is to serve only one of the many possible populations of students. In this case, the population was almost totally severely handicapped.

A traditional elementary school service delivery model was adopted in that all students were assigned to self-contained classes within this self-contained school. Within each self-contained class, a single teacher was responsible for the total educational programming of the students. The following is a presentation of selected presumed or potential advantages that were expected to accrue from utilizing the self-contained classes within a self-contained school model.

Selected presumed or potential advantages of self-contained classes in self-contained schools.

Fewer students per teacher per day. Since the students to be served executed few educationally relevant skills reliably, and were considered to acquire new skills at exceedingly low rates, a need for as close an approximation of individualized instruction as possible was considered essential. If teachers dealt with only a few students each day for the entire day, it was argued that teaching time could be more easily adapted to the acquisition rates and styles of each student, i.e., with few (8-10) students per day it was expected that teachers would have more flexibility in arranging and carrying out instruction than if they were required to relate to either larger groups of students or to larger total numbers of students which would occur if instruction was departmentalized as in the general secondary education model.

Working with fewer students per day was supposed to make it easier for the teacher to spend more time with each student. These one to one interactions were consequently supposed to increase the effectiveness of individualization by placing teachers in situations in which they could adapt to idiosyncratic acquisition styles. Including fewer students in each class also reflected recognition of the paucity of available information regarding what and how to teach severely handicapped students. Having fewer students would presumably provide the teacher with more freedom to create. Teachers were, therefore, to be given an opportunity to determine the "what" and "how" by experimenting "on line" in the classroom.

Fewer instructional materials per class. Most, if not all, commercially available materials were determined to be of little direct instructional value. These materials assumed prerequisite skills that had not yet been acquired by the severely handicapped students. Due to this large discrepancy between required and existing prerequisite skills the materials also were difficult to adapt to individual student needs. Thus, teachers not only had to determine what and how to teach, but also had to devise appropriate instructional materials. As a result catalogs from hardware stores became more commonplace in classrooms than those from educational materials companies. With fewer students per day teachers had at least the opportunity to develop individualized instructional materials.

Fewer parents per teacher. Most of the skills taught to severely handicapped secondary age students presumably were targeted for use in home or other community environements. Therefore, parents needed to be appraised of the skills their children were acquiring and how they might be able to facilitate the performance of those skills in non-school settings. As all teachers are aware, interaction with many parents effectively on a continuing basis is a very time-consuming task. For teachers of the severely handicapped, the task is compounded by the time demands associated with instructional material and program development. With fewer parents to relate to, home visits by teachers, classroom visits by parents, and other forms of direct parent-teacher contact were easier to schedule. With more direct contact, the chance for effective two-way communication was improved, and parents were provided with an opportunity to express their concerns and objectives regarding the education of their children. In addition, the concentration of parents in one school and the visibility of that school in the community enhanced the probability of effective parental actions in the political arena.

Intimate knowledge of a small group of peers. Working together in small groups was expected to increase the opportunities for socialization and sustained interaction with other students, especially since many students previously had not experienced close interactive contact with peers. It was expected that the exclusive association with a peer group that could be achieved in the self-contained classroom would produce a less threatening environment which was devoid of unequal competition. The arrangement of such an environment was considered a potential facilitator of social development. In addition, it was believed that a self-contained class in a self-contained school was a less punitive atmosphere than placement in a self-contained class within a regular public school where non-handicapped peers and adults might be less accommodating and more critical of the appearance and actions of severely handicapped secondary age students. Secondary age severely handicapped students, having outgrown much of their childhood "cuteness", were considered prime targets for ridicule in a regular public school.

These severely handicapped students were therefore in somewhat of a "Catch-22" position. If they were placed according to functioning level, they would end up in an elementary school where the parents of non-handicapped students might lobby for their exclusion based upon irrational fears that their own children's development might be jeopardized. On the other hand, parents of severely handicapped students might present the same argument against an age appropriate regular senior high school placement, focusing the same prejudices against the non-handicapped high school students. For at least these peer group related reasons, a self-contained school was viewed as an advantageous educational environment.

Students learn to work well with at least one adult. Another presumed advantage associated with a self-contained class was the close interaction that could be achieved with an adult authority figure. Learning to respond to reasonable demands made by authority figures is a crucial community living skill. It was argued that if the students could learn to respond to at least one authority figure, this skill would then generalize to other authority figures in other community settings.

Teachers can work in a variety of curriculum domains. In a self-contained class, one teacher is responsible for providing instruction across all curricular domains in which students need to acquire skills. Thus, each secondary teacher was required to teach at least reading, mathematics, language, self-help and community functioning skills. Therefore, it was presumed that the teacher could pace the emphasis given to separate curricular areas on the basis of the students educational needs and could also integrate the learning experience across curricular domains.

Simplified administration. A self-contained school, and to a lesser extent, self-contained classes, present an aura of efficient cost-effectiveness ratios and reductions in physical management problems. Resource persons (e.g., speech, occupational, physical and psychological therapists) essential to the education of severely handicapped students can be centrally located. The amount of time available for providing direct supportive services would therefore be increased, since travelling from building to building, as in decentralized models, is eliminated. A principal presenting a request for a physical therapist to a school board might be more successful if he/she could maintain that the majority of the therapist's time would be spent providing direct services to students. Instructional materials and especially major equipment could be shared across a number of classrooms, resulting in less duplication than might be necessary in decentralized models.

From an administrative point of view, it also seemed that the principal could deal with staff problems and needs more effectively because the staff was housed in the same building. A principal who had direct knowledge of the problems and needs of the staff members would have an essential part of the information necessary to insure appropriate program development and would have a better understanding of the administrative support required to facilitate programmatic changes.

Relatively uncomplex teacher-training setting. The Madison Public School system has for many years assumed the responsibility of providing practicum experiences for University of Wisconsin students preparing to be teachers. A self-contained school simplified much of the difficulty frequently encountered in providing adequate supervisory time for teachers in training in that a supervisor had only one site to visit. In one school day all university students at a self-contained school preparing to work with severely handicapped children could be observed. Since the supervisor did not have to travel to different schools, more time could be scheduled for critical feedback regarding classroom performance.

Self-contained classes required that student-teachers learn to teach only one group of severely handicapped students. Additionally, as student-teachers working with severely handicapped students must learn to solve an unusual array of behavior management problems while they are teaching other skills, a self-contained school with self-contained classes was believed to present them with a more manageable setting in which to learn.

Homogeneous grouping feasible. In self-contained classes within self-contained schools students could be easily grouped for instruction on the basis of the skills they had acquired and how those skills were to be used. A small number of students in each class made it easier for teachers to make such homogenizing determinations. It was assumed that homogeneous groupings would make instruction more efficient by allowing the teacher to individualize programming without eliminating group instructional arrangements. Individualization was supposed to decrease the time necessary to acquire a skill, while group arrangements reduced the personnel costs associated with totally individualized instruction.

Interteacher communication feasible. A self-contained school not only allows for homogeneous student groupings, but it also clusters teachers in a homogeneous fashion. Teachers in self-contained schools are usually trained in special education and possess a common reference base of theories, jargon and techniques. With such a common base it was presumed to be easier for teachers to communicate effectively with one another. In addition, placing people together who had similar professional training was expected to create a situation in which teachers would be interested in learning about the successes and failures of each other.

It was assumed that major benefits would result from increased interteacher interactions. First, instruction could be improved by learning how someone else had already solved an instructional problem and time could be saved by capitalizing on someone else's efforts. If the teachers used each other as "sounding boards" for their ideas, instruction might be improved by receiving feedback regarding the feasibility and completeness of the sequences planned. Second, teachers of similar professional backgrounds who faced similar problems daily might more readily develop relationships that could improve or maintain staff morale by providing built-in empathy, encouragement and support. When one teacher walked up to another teacher and said, "Maria looked at me today for 10 seconds," the significance would be understood immediately.

Instructional programs are not segmented across time and domain. As self-contained classes required each teacher to teach skills in many curriculum domains, it was assumed that teachers would have first-hand knowledge of each student in each domain. Thus, they would be in a unique position to insure general curriculum continuity. Teachers, for example, would have the information needed to require verbal responses during reading and math which were either the same as, or one step behind, those acquired in verbal language instruction. Skills that were acquired in math (e.g., one to one correspondence, time telling, etc.) could then be incorporated and/or expanded upon in the community work skills curriculum domain.

Flexible programming related to individual needs is feasible. Since students would remain in one class for the majority of the school day, teachers would not have to rigidly adhere to prearranged schedules but could adjust them to individual educational needs. If students were demonstrating a high degree of interest in a particular task, teachers could continue instruction. If major instructional goals were being accomplished, such factors as the time of day in which a skill was taught, the number of occasions a student was given to respond, and the exact materials being used could be varied.

Sole responsibility leads to increased accountability. Accountability for student achievement, a major consideration in education, is becoming an especially salient issue as educational institutions are receiving more and more community scrutiny. Public school administrators have the responsibility of insuring that students are provided with the opportunities to allow for educational growth. Teachers have the responsibility to utilize their skills to maximize the chances that student progress actually occurs. It was assumed that since student progress in self-contained classes was the responsibility of one teacher, accountability could be assessed. It was also assumed that having sole responsibility for student growth might provide extra motivation to teachers to continue, no matter how small or slow the progress since with severely handicapped students the number of teaching failures often outnumbers successes.

In the fall of 1969 the Madison Public Schools considered these assumptions about the potential advantages of the self-contained school and self-contained class model. Based on this reasoning they chose this model as an initial approach for providing educational services to severely handicapped students within the public schools.

Selected presumed disadvantages of self-contained classes in self-contained schools.

In the considered judgment of many, the student gains expected to accrue from the self-contained school and class model were not realized. In practice this model had many disadvantages. The following is a presentation of some of the more salient of these disadvantages.

No involvement with nonhandicapped peers. The students in the self-contained school had no exposure to nonhandicapped peers during the school day. As a result they did not have the opportunity to witness and experience normal age appropriate skills. Teachers, continually confronted with students whose interpersonal, dress and grooming habits were inconsistent with those of normal students, began to adapt to and tolerate such differences.

Typical adolescent concerns regarding clothing, hair style, current slang, etc. were virtually nonexistent. In short, the environment created by the self-contained school did little to reduce the severely handicapped appearance of the students.

Constricted interactions with adults. The assumption that if students learned to function well with one adult, they would concommitantly develop the skills necessary to function with other adults did not seem to hold in practice. In retrospect it seems entirely possible that in many cases the teacher-student interactions fostered in self-contained classes resulted in students performing only in the presence of his/her teacher. Self-contained classes rarely allow for the systematic performance of skills across a number of persons. Traditionally structured self-contained classes may, therefore, inadvertently teach students to perform in the presence of one adult and not in the presence of others. Research with handicapped students that has varied the number of adults involved in instruction seems to support this hypothesis (Barrett & McCormack, 1973; Certo & Vincent, 1976; Corte, Wolf & Locke, 1971; Garcia, 1974; Johnson & Johnson, 1972; Kale, Whelan & Hopkins, 1968; Martin, 1975; Stokes, Baer & Jackson, 1974).

Homogeneous grouping misrepresents the heterogeneity of the post-school world. While self-contained classes do not need to be comprised of students who share similar skills or characteristics, they often are. The logic of homogeneity (Brown, Nietupski & Hamre-Nietupski, 1976), which forms the basis for the formation of many self-contained schools, generally filters into policy decisions regarding the composition of individual classes.

Homogenized classes provide a relatively consistent environment in which severely handicapped students can function. The community provides a diverse, changing, heterogeneous environment in which individuals are required to function. The self-contained service delivery model may prepare severely handicapped students to become dependent on consistency when in reality they need to learn how to adapt to inconsistency. Severely handicapped students need to learn that at times they should respond differently to similar situations; that some people allow interruptions in their conversations, but some people expect you to wait; that some stores stock one brand of milk while other stores stock another; and that in some parts of city bus stops have signs with printed words, but in other parts international symbols are used.

If severely handicapped students learned to generalize from one situation, material, language cue and person to others, homogeneous groupings would not necessarily impede community functioning. However, severely handicapped students often manifest only rudimentary generalization skills. One of the major goals of education for severely handicapped students is preparation for community living. Therefore, a heterogeneous model which systematically introduces variation in persons, situations, etc., will probably facilitate this goal.

Limited experiences in community settings. The quest for a consistent environment, and the unwarranted inference that well developed generalization skills existed, interacted with other factors to produce a situation in which criterion performance in a simulated school setting was accepted in lieu of empirically verified criterion performance in community settings. On the rare occasions when students were taken into town the skills performed in the simulated school settings were either quantitatively deficient (e.g., they counted money too slowly at a check out counter in a grocery store) or they were not performed at all. Gradually, it became clear that instruction conducted only in school was inadequate, if the final goal was acceptable community performance.

Teachers' skills become circumscribed. When teachers work only with homogeneous groups of students the teachers often only learn how to teach students who function within a restricted skill range. In a field where federal and state legislation, executive and judicial rulings, economic insecurity, variable funding patterns and movement of teachers from one school to another are common, a service delivery system that prepares teachers to adapt to diversity is needed. Stated another way, self-contained schools and classes breed self-contained teachers.

Teachers skills and interests are not equal across curriculum domains. It was unrealistic to expect teachers to be sufficiently knowledgeable or interested in each content area that needed to be taught. It was also unrealistic to expect that each teacher would possess a repertoire of teaching styles diverse enough to motivate and pace all students. Self-contained schools and classrooms do not easily provide the flexibility necessary to link teacher knowledge and interests with subject areas or student motivational needs with particular teaching styles.

Minimization of interteacher interactions. Simply placing teachers of similar training in the same building does not necessarily engender educationally productive communication. In retrospect, it seems that having self-contained classes reduced the need to interact in that no two teachers had responsibility for the same students.

Because of these disadvantages of self-contained classes and schools, the Madison Public Schools began to evaluate available options. An alternative model appeared to be the use of self-contained classes within a self-contained school using a departmentalized model. This option appeared to offer some advantages over the previous model.

Phase II

The self-contained school: A departmentalized model.

Many of the difficulties emanating from self-contained service delivery models can be organized into two main clusters. One cluster of problems relates to issues pertaining to the generalization of skills across adults, peers, situations, language cues and materials. These generalization problems seem directly related to such issues as the obvious fact that one teacher can not be all things to all students; that inter-teacher communication is often lacking; and that the model did not adequately prepare prospective teachers to adapt to diversity of student populations. In the fall of 1971 a revised service delivery model was implemented for secondary level severely handicapped students within the Madison Public Schools. A traditional departmentalized secondary model was chosen. This model involved giving the responsibility for specific curriculum domains to five different teachers. That is, Teacher A would teach Reading to all severely handicapped secondary students; Teacher B would teach Vocational skills to all severely handicapped secondary students; and Teachers C, D, and E would teach Math, Domestic Living and Community Functioning skills respectively.

Coinciding with the change in service delivery model was a change in schools. Sunnyside School was officially retired from the public school roster. It was replaced by Badger School. Like Sunnyside, Badger was a self-contained school, but it had a small gym so that indoor recreational programming could be expanded. Initially, Badger School provided more space for approximately the same number of students, and the extra space was to be used to simulate vocational and domestic settings.

The advantages provided by the change to the new school building and the change to the departmental model were considered promising in that the changes seemed to provide a means to eliminate or attenuate at least some of the disadvantages of the self-contained classroom model. The following is a presentation of several of the presumed advantages of the self-contained school-departmentalized model.

Selected presumed advantages of the self-contained school-departmentalized model.

Students learn to function with a variety of adults and in a variety of places. Perhaps the most distressing problem encountered with the totally self-contained class model was the failure of students to perform skills across persons, situations, etc. The departmentalized model was designed to insure that students would have the opportunity to perform across persons since each curriculum domain was taught by a different teacher. Then, too, it was assumed that the ability to perform across settings would be improved because the students were required to perform skills in at least five different instructional settings within the school.

Teachers can focus expertise on specific curriculum domains. The departmentalized model provided an opportunity to capitalize upon the teaching skills and interests that had developed during Phase I. Many teachers had indicated definite interests in and had developed effective strategies for teaching skills in a particular curriculum domain. Additionally, as some of the teachers did not have the interest or skills necessary to teach across the various secondary skill areas, the departmental approach seemed to offer a reasonable alternative. That is, it could lead to an improved learning environment for students, and an improved work environment for teachers.

Teachers can develop highly specialized materials. Development of specific expertise in a curriculum domain was expected to facilitate continued improvement in the instructional materials that were being constructed or adapted by a teacher. A shift to a focus upon one curriculum domain allowed a teacher to spend the necessary time creating, refining and empirically verifying crucially important instructional materials.

Teachers learn to apply skills across a variety of functioning levels. By teaching skills in one curricular area to all the secondary severely handicapped, teachers could not only capitalize upon their interests, but also could expand their knowledge within a curricular domain and absorb and accommodate students who exhibited varying levels of prerequisite skills. The teacher was not solely confined to devising, for example, vocational tasks for students using only an artificial match-to-sample presentation for acquisition. The teacher also could work with students who could learn the task from a variety of different strategies. This, of course, increases the individualization skills of teachers. A secondary gain anticipated from such varied teacher-student interactions was an appreciation for reasonable longitudinal curriculum sequences. Teachers could also be expected to have a more concrete conceptualization of which auxiliary skills a particular student needed to learn before being exposed to a more complex task. It appeared that suppressed student development due to limited teacher expectations might be avoided or minimized with this model.

In summary, it was anticipated that the general advances that have been realized from departmentalized models for normally functioning students would accrue for severely handicapped students as well.

Selected presumed disadvantages of a self-contained school-departmentalized model.

It was the considered judgment of almost all who were directly involved that the change from a self-contained class in a self-contained school model to a self-contained school-departmentalized model generally resulted in qualitatively improved educational services. However, in addition to the disadvantages of the self-contained school model of Phase I, there seemed to be disadvantages that were particular to the departmentalized model. The following is a presentation of some of the major disadvantages of the self-contained school-departmentalized model.

Necessary communication between teachers was often questionable. The simple movement from room to room reduced the amount of time available for direct teaching. Reductions in the amount of total instructional time made it difficult for teachers to introduce the flexibility necessary to address individual student needs. From a broader perspective, teachers did not have or did not take the time to discuss student progress in other curricular domains. As a result there was a lack of continuity in the skills students were acquiring across various curricular domains and in some cases a decrease in student progress within a domain due to the reduction of individualization.

Distributing instruction across five teachers divided the responsibility for student change. This divided responsibility made it more difficult to clearly delineate the accountability of individual teachers. A departmentalized model does not by its structure necessarily lead to such a result, but as the model discussed here was organized, time was not set aside for teachers to meet as a team to decide upon general program goals. For example, Teacher A often complained that Teacher B was not effective and that the skills Teacher B was supposed to produce were not present. Thus, the progress of Teacher A was retarded. In addition, the principal was approached by teachers demanding more teaching time for their curricular domain. Common arguments centered around the issue that some curricular domains were more important than others and, therefore, should be given more instructional time. This controversy between teachers combined with the lack of communication impeded student learning.

Necessary communication between parents and teachers was often questionable. In the departmentalized model, each teacher was responsible in part for all secondary students. Two outcomes resulted: 1) parents needed to communicate with at least five teachers; 2) with such a large number of parents to contact, teachers had to rely upon indirect methods of communication (e.g., notes). The sustained interactions so vital between home and school suffered.

Student performance across persons and settings within curriculum areas was lacking. One advantage cited in support of the departmentalized model was the opportunity it presented for students to perform skills across a number of people and in a variety of settings. Although students did, in fact, perform skills across a variety of people and settings, one variable that was not accounted for was that the same skills were always performed with the same teacher and in the same classroom. Skills acquired with one teacher were not being performed with other persons and in other settings. Generalization was, therefore, still a problem. If generalization was to be dealt with, a service delivery model which required performance of skills across persons and places within and between curricular domains was mandatory.

Related to the generalization problems, homogeneous groupings of students, a lack of involvement with nonhandicapped peers, and infrequent interactions within crucial community environments were still prevalent. Students were still not being taught to adapt to the diversity of the post-school world. Since it had been demonstrated that generalization could not be expected or inferred, a model which incorporated heterogeneous interactions as a daily course of events began to surface as a priority which could not be ignored.

Phase III

A self-contained school combined with community settings: Integrating simulation in school with demonstrating and systematically verifying criterion performance in community settings.

The criterion of ultimate functioning refers to the ever-changing, expanding, localized and personalized cluster of factors that each person must possess in order to function as productively and independently as possible in socially, vocationally, and domestically integrated adult community environments. Since severely handicapped citizens will ultimately function in settings which contain less handicapped and nonhandicapped citizens, the majority of the developmental environments to which most severely handicapped citizens are now exposed will have to be changed substantially. Longitudinal segregation, whether manifested in residential institutions or self-contained schools, homes or classes will not culminate in the realization of the criterion of ultimate functioning (Brown, Nietupski, & Hamre-Nietupski, in press).

In reference to the realization of this criterion Brown, Nietupski and Hamre-Nietupski further state:

> ...(eventually) severely handicapped citizens will attend church, shop, wait in the offices of physicians, ride public buses, wash dishes, attend movies, use restrooms, cross streets, and cheer at football games with less handicapped and nonhandicapped citizens.

It should be readily apparent that when the general skill levels of most severely handicapped adults are considered, that significant training efforts will be required if younger severely handicapped students are to learn to perform in accordance with their capacity. As new training efforts are designed there is no doubt that traditional public school service models will need to be changed. For example, the concept of a school must be expanded to include regular involvement in community environments. For far too long the programs that have been designed and implemented for severely handicapped students have insured that such students would not learn to function as independently as possible in integrated adult public communities.

The current secondary age educational service delivery model for severely handicapped students in the Madison Public Schools represents a significant departure from the models described in Phases I and II. This departure reflects a commitment to graduate students with more independent community functioning skills than those who have graduated in the past. The service delivery models of the past did not include consistent instruction in community settings and were not designed so that criterion performance on tasks taught in a school building could be empirically verified in community settings. Model III is designed to provide systematic instruction that would clearly demonstrate the existence of the required skills prior to graduation. Students who had graduated would, therefore, possess the necessary skills to function in heterogeneous adult communities.

The educational service delivery model presently operating in the Madison Public Schools includes systematic attempts to combine teaching severely handicapped students in public school classrooms with teaching them in local community settings. In addition, if skills are taught in simulation in school, attempts are made to empirically verify criterion performance in actual community settings.

Selected potential advantages of a school-community model.

Students were taught to perform skills within and between curricular domains, and across persons, places, materials, and language cues. A school-community instructional model reduces the probability that severely handicapped students will become "stimulus bound" to the circumscribed consistent characteristics of self-contained classrooms or schools. Such a model allows the teaching of a set of skills in one setting by one person using a particular set of materials and language cues, and then verification that these same skills are performed in community settings in reaction to different adults and to more "natural" materials and language cues. For example, in a school-community model a severely handicapped student can be taught a set of vocational skills by a classroom teacher, a vocational teacher, and ultimately by an actual work supervisor, yet all three trainers would probably use different language cues and the settings would differ. In addition, within a school-community model a student may be required to perform skills in a school at a simulated work station, and ultimately at an actual job site. In effect, a school-community model forces the student to learn appropriate reactions to continuous environmental changes.

The development of functional post-school skills was enhanced. In the past post-school environments available to severely handicapped adults in Madison have been relatively limited in that graduates have had few residence and employment options. Graduates could reside at home, in a limited number of group homes, or in an institution. Vocational options were almost exclusively of the sheltered variety: an ARC day-care program and a nonprofit sheltered workshop.

More recently, however, there has been a concerted effort on the part of parents and professionals to improve and expand the post-school environments available to severely handicapped citizens. Residential opportunities still include living in natural homes and in institutions. These options are, however, exercised by fewer and fewer persons. Graduates now also live in group homes and semi-sheltered apartments that involve only minimal supervision. Post-school vocational options also have been expanded to range from placement in highly supervised sheltered workshops to competitive work.

One of the primary reasons for developing a school-community service delivery model is to attempt to produce a closer alignment between the training a student receives in school and the skills needed to function as independently as possible in adulthood. Thus, home living skills are now taught at school, but also at home and in group homes. Vocational skills are taught at school, in simulated job settings and at actual job sites. The goal is to teach individual severely handicapped students post-school skills that reflect places and situations where the students are currently functioning and those places where the students may ultimately function.

The gap between school and community was reduced. When students started to receive systematic instruction in natural community settings the dichotomy between school and community seemed to become more nebulous. Consistently teaching skills in natural settings has had a pronounced effect upon the content covered in various school programs. For example, teachers are no longer satisfied with simply teaching students to count coins. Instead they are imbedding coin counting within a purchasing format (Certo & Swetlik, in press). In the past teachers were content to teach students to prepare meals at school. Meal preparation is now taught in group homes and natural homes as well. In addition, the scope of meal preparation has been expanded to include purchasing necessary items at a supermarket (Nietupski, Certo, Pumpian and Belmore, in press). Motor skills, math skills, purchasing skills, transportation skills and social skills are no longer viewed as separate entities. A beginning has also been made toward viewing the broad spectrum of community leisure facilities as ideal vehicles for providing extra training for the development of academic, pre-academic and functional academic skills.

Closing the gap between school and community creates the potential to increase the time available for developing skills needed to function effectively in the community without sacrificing academic skill development because the academic skills that are taught will by necessity more closely coincide with those needed in community environments. There are many ways, some attempted, some planned and some unavoidable, to reduce the gap between school and community that are a natural outgrowth of a school-community service delivery model.

Exposure to non-handicapped peers and adults in the community was increased. At this writing some students are based in a self-contained school, not even directly connected to a public bus line. Thus, it is difficult to provide consistent exposure to and interaction with non-handicapped peers and adults. Unfortunately, the fears and concerns of many parents further reduce the number and kind of interactions with non-handicapped individuals. However, many severely handicapped students are able to interact with non-handicapped peers. Almost all secondary age students have been exposed to and interacted with normal peers and adults on public buses and in public libraries and restaurants. Admittedly, too few sustained interactions have occurred, but severely handicapped students did request food, learned to avoid pushing and shoving in line, learned to function quietly because other people were reading and learned to sit down in an empty seat on a public bus. These interactions produced many positive social gains in the absence of systematic direct training. The choice of more age and style appropriate clothing during days when the students were to travel about town, or the student occasionally combing his hair after removing a hat upon entering a public building are but a few examples. In addition, many students successfully sustained interactions with store clerks, librarians, waitresses, and other service-providing persons. Finally, at least 15 secondary age, severely handicapped students successfully maintained relatively complex interactions with non-handicapped peers who were fellow employees and with Citizen Advocates (persons who volunteer to spend after-school hours with handicapped citizens under supervision of the local ARC).

Parents became more directly involved in school programs. Since the school-community service delivery model was a novel approach locally and one that involved a certain amount of risk on the part of both students and teachers, most parents requested information pertaining to the nature of community activities and the degree to which their sons and daughters would be exposed to potentially hazardous, embarrassing, or punishing situations. When initial parent meetings were held many parents thought that the new community oriented program simply meant more "field trips." However, as some students began to learn to work in competitive job settings, make purchases at real grocery stores and perform other newly acquired skills at home, parents became better informed about the goals and potential benefits of the model. As the school year progressed the content of parental questions began to focus upon gaining information about exactly what their son/daughter had learned and was learning, and toward requesting extensions of the skills that were being taught. A shift into community instruction generated a situation in which both parents and teachers found increased communication both necessary and natural.

Students may adapt to negative affect, rejection, and ridicule. If severely handicapped students are to venture into heterogeneous adult community environments daily, it can be expected that they will eventually experience forms of negative affect, rejection and ridicule. Unfortunately, there are members of our society who feel the need to fear, physically harm, ignore, ridicule, harass, and attempt to confuse our students. There is no doubt that severely handicapped students will find it necessary to cope with other peoples' prejudices when away from the protective scrutiny of parents, teachers and schools. The position offered here is that it is beneficial to allow such situations to occur, but under circumstances where a teacher can intervene for reasons of protection and training. One strategy that seems to have merit is, for example, when teaching public bus skills, to arrange for an adult volunteer, whom the severely handicapped students have never met, to ride the buses without the student's knowledge. In this way many difficulties can be dealt with as they happen, providing a means to teach students how to adapt to real problem situations.

Students were expected to perform as non-handicapped citizens. One way to effectively deal with the problems of ridicule, harassment or indifference might be to minimize individual characteristics which secure unnecessary attention. For example, in the domain of self-help skills, students should be taught not only how to dress, but to wear age and style appropriate clothing. Although a more age appropriate appearance will probably help, other crucial skills must be developed before general community acceptance is realized. In the past, when students rode public buses or shopped at grocery stores, inconsistencies in bus stop signs or arbitrary separations of similar food items on shelves proved frustrating. Teachers often voiced implicit expectations that society should be reorganized to accommodate to the needs of severely handicapped individuals. Such expectations may provide a pleasant cathartic experience, but will do little in the way of increasing community acceptance of severely handicapped adults. As professionals, we can no longer be satisfied with skill acquisition, if the skill is performed in an unreasonably slow, impolite, inconsistent and adult-dependent manner. Such performance will only maintain the social barriers which already make the community inaccessible for many severely handicapped citizens. Only when performance begins to approximate that of non-handicapped individuals can we expect to see needed changes in community acceptance.

Attenuation of community and professional expectancy stereotypes. Stereotypic expectations can not only result in harassment, but can also place limitations upon the kinds of interactions severely handicapped students might have in the community. For example, when bus riding skills were initially taught, actual bus riding was delayed by two months of classroom instruction. One major reason was skepticism about the ability of the students to adapt to the demands of public bus riding. When the students finally started to ride public buses they were taught to always get on or off the bus at a particular bus stop to minimize the chance that they would get lost. Of course, the inevitable happened one afternoon; a bus arrived without a student. The student left the bus at a different bus stop by accident, but easily found his way to the pre-arranged destination. By bringing the severely handicapped students into the community, actions that were believed "beyond" their skill repertoires continually surfaced.

Changes in expectations have occurred in persons after regular interaction with severely handicapped students. Three employers, each of whom reluctantly rewarded perseverative phone calls with competitive employment for one student are now ready to employ more students than are currently available. One supermarket manager who initially allowed his store to be used as a training site simply because the school maintained an active charge account, now offers suggestions on how to efficiently teach severely handicapped students to use the facility. The shift to a school-community model has not only surfaced unexpected skills, but has also shown that the presence of severely handicapped individuals in a store, on a bus or on a job does not necessarily equal bizarre disruptive actions.

Longitudinal program goals made salient. The shift to a school-community model has fortunately surfaced student skills of which teachers are unaware, and has made salient several important shortcomings of exclusive classroom instruction. These shortcomings are generally expressed in two ways. First, when a community functioning skill such as reading a restaurant menu and ordering food, is taught solely in the classroom; the skill rarely, if ever, transfers to natural settings. A longitudinal program objective for restaurant skills could only be met when a student visited an actual restaurant, and without a teacher present, read the menu and ordered food appropriately.

Second, there are ancillary skills related to every isolated skill that is taught in a school that are crucial to effective functioning in a natural setting. When severely handicapped students were placed in remumerative jobs it was determined that simulated job training had not included many necessary, though supplemental skills. Although students had been taught to tell time, they had not been taught to keep appointments. Therefore, before it could be expected that these students would arrive on time for work, additional training was necessary. Many students involved in vocational preparation had been taught to respond to diverse language cues during a number of years of language instruction. However, they had not been taught to respond to commands that were frequently issued by their actual job supervisors (e.g., "We need a picker."). In short, the content of the school based language training had not included idiomatic and/or idiosyncratic language content common in actual vocational settings. Obviously, excursions into the community have initiated a realignment of classroom goals and curriculum content.

Students learned to perform without teachers as supervisors. In service delivery models for severely handicapped students where most instruction occurs in schools, teachers, student teachers, and aides serve as primary supervisors. When teaching personnel serve as primary supervisors on a regular basis, severely handicapped students often become dependent upon them to provide cues that indicate when and how to perform a skill. Until supervision is eliminated and skills are performed in natural settings in reaction to naturally occurring context cues, it cannot be assumed that a skill has acquired functional significance. Many community related skills such as cooking, shopping, riding buses, and janitorial job responsibilities serve as clear reminders to the teaching staff that self-initiated student performance of crucial skills is mandatory.

Student development was a function of teachers and non-teachers. When severely handicapped students receive a significant amount of their instruction outside the classroom they will inevitably interact with non-teaching persons. Unfortunately, these non-teaching persons have often had little, if any, previous dealings with severely handicapped students. In effect, severely handicapped students must perform skills for community persons who consequate actions in a manner often different from teachers. These community persons often do use consistent cues and are not particularly informed of the rights and unique needs of severely handicapped citizens.

Although the vocational training component of the school-community model involves extensive use of on-the-job instruction, the ultimate supervisors of a severely handicapped worker will almost always be non-teaching persons whose foremost concerns revolve around the operation of a profitable business. Fortunately, work supervisors primarily concerned with the production skills manifested by severely handicapped employees often become facilitators of student growth.

A more demanding test of teacher accountability. The criterion of longitudinal program success for severely handicapped students includes the empirical verification of functional skill performance in natural settings, without teachers present. These parameters of skill verification are certainly more demanding for teachers than the more limited verification possible in schools. For example, when a vocational teacher removes him/herself completely from instructing a severely handicapped worker on an actual job, her/his ability to teach work skills is evaluated by the level of success or failure demonstrated by the student. In addition, when a teacher suggests to severely handicapped students and to their parents that the students can and should perform, in many ways, as non-handicapped persons, the responsibility to provide the skills necessary for success is placed upon the teacher.

Improved staff and student morale. It is the judgment of almost all persons involved in the school-community model that when students become aware that they will have opportunities to perform school learned tasks in real life situations, excitement, morale and interest increases dramatically. In addition, the reaction of teachers to the school-community model has been enthusiastic to say the least. When the model was initially implemented, teachers had a number of well-founded reservations and several of these reservations are presented below as potential disadvantages. However, after several basic problems were resolved, teacher reservations were replaced with cautious optimism. At this point there is not one teacher who would return to the departmentalized model. Indeed, the teachers are actively planning more and more community involvement for the future.

Selected potential disadvantages of the school-community model.

Despite the overriding advantages of the school-community service delivery model for secondary level severely handicapped students, it would be unrealistic to project the model without delineating several of the more pronounced disadvantages. Thus, in the following section some of these disadvantages will be presented.

Before the school-community service delivery model was put into operation, teachers and parents raised a number of reasonable reservations. Some of these reservations were:

1. Since systematic community instruction is a relatively new concept

locally, why should severely handicapped students be used as experimental subjects to determine the validity of such programming?

2. What sort of community programming would be most effective with lower functioning students of secondary age? Would these students have to wait until they had a number of prerequisite skills before they could be involved in community programming?
3. How will scheduling be arranged and who will be ultimately responsible for the students when they are out of the building?
4. Will administrative support for the program be there when it is needed?
5. How many students can be served realistically in an effective school-community program?
6. Will there be enough community support and tolerance when the students are taken into community settings?
7. What about student transportation?

In the remainder of this section issues related to the above questions will be presented.

Minimum wage law problems. A crucial component of the school-community service delivery model relates to vocational training. The goal of vocational training is actual employment in the most competitive jobs possible. If severely handicapped students are to leave school with marketable vocational skills, it is crucial that training be conducted in real work settings. In order to receive permission to use actual work settings for training purposes it was often necessary to convince employers that the training would supplement rather than interfere with actual production. However, according to at least one interpretation of recent labor laws, anyone who performs a service or produces a product which is ultimately marketed must be compensated. As a result it was necessary to arrange and tolerate simulations of complex job skills that required relatively long training periods. In an attempt to avoid many of the pitfalls of the past, work sites within the Madison Public School System were chosen, e.g., industrial equipment at a high school cafeteria was used to teach dishwashing skills. Considering that the educational statutes of Wisconsin clearly refer to education for handicapped students in terms of individual needs, and that the vocational settings were sanctioned by school administrators and within public school facilities, state labor officials were satisfied that the vocational training was "educational" and did not require compensation. When employment opportunities arose during the school year that allowed for payment, students performed the work for payment at actual worksites rather than in school facilities.

Liability insurance problems. Whenever a teacher, an aide or a student teacher instructs one or more students, liability insurance is required. However, liability insurance coverage does not always include instruction outside school facilities. Students and teachers involved in community training could be covered by liability insurance only when the students were in the charge of certified teachers. Thus, aides, student teachers, psychologists, etc., could not instruct students at community settings unless a certified teacher was present. In many ways these insurance related problems limited the scope of community training. For example, it could not be verified that a severely handicapped student could use a public grocery store unless a certified teacher looked on from a distance.

Traditional public school models had to be revised. The school-community model defies the scheduling simplicity of self-contained and departmentalized service models. There are three factors which generate enormous scheduling difficulties: travel time to and from town; the need for staggered arrivals and departures of students to avoid overcrowding at community training sites; and the difficulties presented by the insurance requirement that a certified teacher must always be present in situations where only two or three students can benefit from training at any one time. These three factors clearly indicate that some of the benefits of community instruction are paid for by a reduction in direct teaching time.

In addition to scheduling factors, the content of instruction in a school-community model is radically different from that of a traditional school environment. Severely handicapped students learn how to order food at restaurants, cross streets, work, shop, and ride public buses. Academic classroom instruction becomes focused upon practical community applications. Such an applied orientation sets restrictive limits upon the content of academic programs and instructional materials. For example, a situation might arise in which students are taught to use money to make purchases, but are not taught underlying concepts of equivalence, set formation, or one to one correspondence. Without these related concepts, money-use might become limited to the exact items the students are taught to purchase. Thus, it probably would be difficult for the student to shop when a store has run out of a particular item. Certainly, severely handicapped students could be taught alternative problem solving skills, but a completely applied curriculum is probably not the route for such an objective.

Small group instructional arrangements are more prevalent. Although small group instructional arrangements probably net a higher cost effectiveness return than one to one instructional arrangements from both acquisition and economic perspectives, they are more costly initially than large ratio instructional arrangements. The eventual goal of most if not all educational skills is the self-initiated performance of those skills in natural settings. Transitioning a severely handicapped student toward independence, especially when that student has a long history of adult dependence, is a time consuming and often frustrating task. For example, teachers must learn to do more observing than interacting. With direct teacher intervention reduced, the probability that the student will encounter failure increases. Initially, teachers might have to accept qualitatively lower performance, if it is self-initiated.

Teaching roles have to be expanded. As a result of the school-community model, it has been necessary to expand teacher roles, especially in the areas of teaching hours and the locations in which instruction takes place. If a teacher is arranging for the eventual independent performance of a set of leisure skills (e.g., movie attendance and viewing) at least two assumptions can be made. First, criterion verification of movie attendance and viewing will take place in real movie theatres and a significant number of teaching trials must be attempted in real facilities. Second, empirical verification of acceptable movie skills should probably take place during typical recreation time periods and not only during the school day. The working hours of teachers will change, and teachers will be working in community facilities as well as in schools. Needless to say, some of the difficulties resulting from necessary changes in the teaching day and in teaching locations are unsettling to some classroom-oriented teachers and to some extent to teachers in training who are unprepared for community instruction.

More expensive in short run. Obviously, the cost of transporting and instructing students at community sites is more expensive than conducting classes in school rooms. Some of the factors that contribute to the increased costs of school-community programs are listed below.

1. Reduced student teacher ratios are needed.
2. Transportation costs which include public bus, private bus rental, public taxi, and teacher reimbursement for private auto use are vital.
3. The consumable instructional materials needed for community programming (e.g., coins/bills, food items, work clothing and safety items, etc.) are increased.
4. The basic cost of liability insurance is increased.
5. Miscellaneous rental fees (e.g., rental of bowling alleys, bowling shoes, archery equipment, etc.) increase.

However, despite the short term expenses incurred from a school-community model, it is argued that the potential for long term gains outweigh the initial financial investment. Listed below are selected long term gains that seem reasonable:

1. Increases in independent functional skills lead to reductions in the costs of supervision;
2. Competitive employment reduces government welfare and disability payments;
3. Increased independent home living skills reduces the need for low ratio adult maintenance care;
4. Competitive employment skills reduce the supervision costs incurred in subsidized sheltered workshops;
5. Independent shopping and transportation skills reduce domestic supervision costs.

Individualization requires staff increases. In order to verify empirically that individual severely handicapped students can perform a series of independent adult skills in natural settings students are required to perform many skills alone in a variety of natural settings. In addition, it appears that acquisition is smoothest when the student-teacher ratios for most community programs approximates 4:1. Obviously, the quality of any community-based program will be a direct function of the number of teachers available. On the other hand, it should be noted that the school-community model was able to provide community instruction to approximately 53 secondary aged severely handicapped students by adding only two teachers to a staff of seven. While staff increases are required by a school-community model; hopefully, such increases can be kept to a minimum through efficient scheduling.

Parent concerns and fears made salient. Parental fears surfaced as soon as the school-community model was discussed. There are many valid reasons why parents of severely handicapped students should be concerned about the independent functioning of their children in community settings. In years past many secondary age severely handicapped citizens were denied public school education. From a parent's perspective, past exclusionary arguments and professional descriptions have probably shaped many fears concerning the inability of their children to function independently. Many parents and educators are skeptical concerning the overall skill performance of severely handicapped students. In effect many parents will continue to be concerned until their children can demonstrate adult skills across several domains.

Competition for jobs presented. One of the goals of the school-community model was to demonstrate that some severely handicapped students could maintain themselves in competitive employment. In order to reach this goal potential, jobs were selected that were frequently considered to be of low status in the community, specifically dishwashing and janitorial jobs. However, it was quickly determined that preconceived notions of job status were irrelevant when severely handicapped students competed for jobs previously handled exclusively by nonhandicapped workers. For the most part, nonhandicapped workers resented the possibility that their job could be handled satisfactorily by a severely handicapped worker. Thus, it became necessary to reduce the visibility of handicapping conditions and to teach as many work skills as possible before severely handicapped students applied for competitive jobs.

Time required per task difficult to arrange. One of the most important factors of all instructional programs for severely handicapped students is the need for the repeated practice of clusters of skills. Without repeated practice across extended time periods, it is difficult to acquire community acceptable performance criteria. School exclusive models are ideal arrangements for providing repeated practice opportunities. However, the school-community model presents problems in this regard in that it is often difficult to arrange for sufficient practice. Practice trials are limited by the length of time that can be spent at a site and by the non-functional nature of repeated training trials. For example, in one community program students were taught to dine in a cafeteria and one specific skill involved the proper use of trash receptacles. During visits to various cafeterias there was not time to practice using trash receptacles more than twice. In addition, teaching the students to use the trash container (e.g., 20 times during one cafeteria visit) would have been non-functional and quite unrealistic. One solution was to afford repeated practice in simulation at school and then to extend the skill to other community settings.

Program continuity problems. The overall logistical problems encountered daily are possibly the most difficult aspects of a school-community model. The constant need to rearrange schedules, transport students, and plan for new community sites requires inordinate amounts of time. Program continuity problems can be resolved only when efficient scheduling and inter-teacher cooperation are operating. If a small cluster of students is to receive instruction at a public grocery store during the same interval that another cluster of students is to receive vocational training in a laundry, several logistical problems arise. Obviously, it is crucial to find appropriate community training sites. These sites can only be found by teachers with adequate time designated for this purpose. Each student's daily routine must be organized in a consistent manner so that the schedule is predictable for the student, parents and classroom teachers. Scheduling should be arranged so that whenever feasible each student receives community instruction across all major curricular areas.

Summary of school-community service delivery model.

Before leaving this rather cursory discussion of the school-community model, it seems appropriate to summarize several of the major issues related to such a model. First, it seems reasonable that teaching independent community functioning skills is best accomplished when the skills are taught in both school and community settings. Thus, decisions as to the skill clusters that can be taught best in school as opposed to those that are best acquired in natural community environments are crucial.

Second, in the past when teaching students selected skills, the instructors chose to teach all the school components before teaching functional components in community settings. Many times such a clearcut dichotomy between school and community is unnecessary. For example, severely handicapped students acquiring bus riding skills probably should have practiced rudimentary forms of actual bus riding concurrent with related instruction in school

(Certo, Schwartz and Brown, 1975).

Third, it is imperative that skills taught in schools be verified empirically in natural community settings with community accepted performance criteria. It cannot be inferred that a student who can make grocery purchases in a simulated school store will be able to make similar purchases in real supermarkets. There are innumerable characteristics of supermarkets, indeed, almost any natural community setting, that can never be simulated in schools.

Fourth, in a school-community service delivery model realistic student teacher ratios are crucial. The protective boundaries of a classroom or of a simulated street crossing in the school gym are not present in natural community settings. The option of having four students working on Task A and four students working on Task B is untenable when one teacher takes 8 severely handicapped students to a public market place. Student-teacher ratios of three or four to one will probably be required for training in natural settings.

Fifth, there are thousands of sub-skills, attitudes and values that contribute to the successful performance of almost any skill necessary for independent community functioning. Unfortunately few, if any, generally acceptable instruments that allow for the precise assessment of community functioning skills exist at this time. Thus, it is necessary for the teacher to arbitrarily generate non-inclusive clusters of skills that are presumably necessary for severely handicapped students to independently shop, recreate, ride buses, etc. (Nietupski, et. al., in press; Belmore & Brown, in press; Schwartz, in press; Certo, Schwartz & Brown, 1975).

Finally, instruction in community settings requires the degree of program precision and preparation similar to that employed daily in classrooms.

Community instruction for severely handicapped students should not imply that a group of students are embarking on a "field trip." Rather, such instruction should imply that the school in which functional skills are taught has been moved to more natural settings; that the walls of the school have been decreased and that those walls are permeable.

Phase IV

Self-contained classes within regular middle and senior high schools and community settings: Integrating simulation in school with demonstrating and systematically verifying criterion performance in community settings.

At the start of the 1976-77 school year only 10 severely handicapped students of secondary age will be placed in self-contained classes in a self-contained school; 22 severely handicapped students will be placed in two different regular middle schools; and 18 severely handicapped students will be placed in two regular senior high schools. It is intended that self-contained schools will not be a component of the service delivery model for handicapped students of any age and any functioning level in the Madison Public School system by the start of the 1977-78 school year.

Since the majority of secondary age severely handicapped students will be served in regular middle and senior high schools, it is anticipated that the school community model described in Phase III will be expanded to allow for more community involvement and more realistic social-emotional development. That is, it is intended that severely handicapped students of all functioning levels from birth through young adulthood will interact with non-handicapped students throughout their school years.

There is no doubt that placing severely handicapped students in regular middle and senior high schools has the potential of creating both real and irrational problems. However, the advantages that can be realized from extensive exposure to nonhandicapped peers, more realistic involvement in complex social and emotional environments, more assessible age appropriate leisure activities and more sophisticated performance expectations will result in longitudinal gains that could never be realized from confinement in self-contained schools.

Summary

Throughout the past seven years the Madison Public Schools have been engaged in the task of developing increasingly comprehensive educational services to secondary-age severely handicapped students. These services were imbedded within the context of educational service delivery models comprising a chronologically increasing continuum: Phase I, totally self-contained; Phase II, departmentalized; and Phase III, combining the self-contained school and community settings. The gradual transition in service models to the present model, Phase IV, which integrates self-contained classes in regular schools within the community was primarily the result of continued problems in the generalization or transfer of skills acquired in school to the community environments in which these skills were functional. Although the shift to school-community instruction has increased administrative complexity, it is the general belief in the Madison Public Schools that the potential benefit to the students will eventually supersede the problems created.

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TEACHING SELECTED SEX EDUCATION AND SOCIAL SKILLS TO SEVERELY HANDICAPPED STUDENTS

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TABLE OF CONTENTS

I. PHASE I OF THE SEX EDUCATION AND SOCIAL SKILLS CURRICULUM

A. Introduction

1. Rationale 59

2. Methodology
  a. Students 60
  b. Instructional Procedures 61
  c. Measurement Procedures 62

B. Parental Interactions 63

C. Components of Phase I of the Curriculum 64

1. Bodily Distinctions
  a. Body parts 64
  b. Sex distinctions; man-woman, boy-girl with clothing . . . 65
  c. Sex distinctions; man-woman, boy-girl without clothing. . 66
  d. Bodily changes related to growth; man-woman, boy-girl . . 67

2. Self-Care Skills
  a. Premenstrual training 68

3. Family Members and Relationships 69

4. Social Interactions 69

5. Social Manners 71

II. PHASE II OF THE SEX EDUCATION AND SOCIAL SKILLS CURRICULUM

A. Introduction

1. Rationale 73

2. Methodology 74

B. Parental Interactions 74

C. Components of Phase II of the Curriculum

1. Growth Distinctions and Reproduction

  a. Growth distinctions; babies-grownups 77
  b. Growing up; distinctions between (little) babies-children-grownups 79
  c. Reproduction 83

2. Self-Care Skills
a. Grooming, domestic maintenance and cooking skills 98
b. Menstrual training 102

3. Social Interactions and Social Manners 103

III. RESULTS TO DATE 106

IV. GENERAL DISCUSSION 107

V. REFERENCES 108

A. Overview 108

B. References for Professionals 110

C. References for Parents 124

D. Books for Youth 126

VI. APPENDICES

A. Parental Interactions 132

B. Growth Distinctions; Babies-Children-Grownups 135

C. List of Self-Care Skills for Semi-Independent/Independent Functioning 136

D. Self-Care Skills and Checklist Data Sheet 139

I. PHASE I OF THE SEX EDUCATION AND SOCIAL SKILLS CURRICULUM

A. Introduction

1. Rationale

Severely handicapped students are now being expected to function as appropriately and normally as possible in increasingly less restrictive living environments. This means that they are expected to reliably and consistently display a wide variety of appropriate social behaviors including appropriate sexual behaviors. Appropriate sexual behavior skills are an integral part of a vast array of social skills necessary to approximate appropriate and normal adult functioning rather than an isolated skill which merely involves learning about how babies are made. The description of a sex education and social skills curriculum presented here encompasses bodily distinctions, self-care, family relationships, social interactions, social manners, growth distinctions and reproduction. The curriculum has been in process for three years and has been under continuous revision and development in response to student performance data.

The initial students were 12 to 16 years of age with IQ scores ranging from 35-51. Behavioral observations and reports from parents, teachers, and administrators indicated that the students were engaging in inappropriate social and physical interactions with themselves, peers, and adults (e.g., public masturbation, indiscriminant touching of others, and public display of underclothing and body parts). The students were also experiencing physical growth related to puberty and often attempted to verbally and/or physically report changes in their bodies, but did not have a suitable vocabulary. The occurrence of inappropriate behaviors, the lack of an appropriate vocabulary led to the development of the sex education and social skills curriculum. The intent of the curriculum was to eliminate the problem behaviors by teaching the students appropriate behavioral alternatives. Participation of the students' parents was an essential component of the program because they provided the educational staff with the support necessary to implement the program and facilitated the transfer of skills taught at school to the home.

The sex education and social skills curriculum was implemented in two phases. In the first two years of programming (Phase I) five component programs were taught: bodily distinctions, self-care skills, family relationships, social interactions and social manners. In the third year of programming (Phase II) the original curriculum was extended to include an additional component program: growth distinctions and reproduction. Each of the component programs had its own hierarchies of objectives. Interrelationships did exist among component programs however, i.e., students were required to demonstrate the ability to discriminate selected body parts (body parts program) before they were taught self-care skills which required discrimination of body parts (self-care program).

Methodology and Phase I of the Curriculum will be briefly reviewed[1]. Phase II which is not reported elsewhere will be described in more detail.

2. Methodology

a. Students

In the three years since the introduction of the sex education and social skills curriculum, three different teachers and classrooms have been involved in the project. Table 1 depicts information concerning the ages and functioning levels of students who have been involved in the project.

---

[1] Due to the curriculum being designed and implemented over a period of three years, component programs of the curriculum are found in Hamre and Williams (1974) and Williams, Pumpian, McDaniel, Hamre-Nietupski and Wheeler (1975).

Table 1

CA's and IQ's of Students Involved in the Sex Education Curriculum

Number of Classes	Number of Students	$\overline{CA}$	CA Range	$\overline{IQ}$	Range
3	20	14-9	12-10 to 17-6	44.3	35-54

b. Instructional Procedures

Two basic teaching and measurement designs were used: a model-test-teach design and a test-teach design. The model-test-teach design consisted of two segments. In the first segment the teacher modeled the correct responses for the students and had the students practice them; the required responses varied from verbal to physical. In the second segment, the teacher presented a verbal response cue. If students responded correctly they were praised. If they responded incorrectly, they were taught the correct response through either a modeling procedure (the teacher modeled the response and had the student imitate), or a priming procedure (the teacher physically guided the student through the correct response). For students who initially responded incorrectly, the models or primes were faded until the students could perform the correct response unassisted. Models were faded by presenting a successively shorter segment of the modeled response. Primes were faded by gradually lessening the amount of guidance. The test-teach design consisted of implementing only segment two of the model-test-teach design.

When using a model-test-teach design, measures were taken to assess whether the students could perform the behaviors when they were not preceeded closely in time by verbal instructions. Rebaselines, retests, post-tests and/or measures of generalization were administered to assess whether the students could perform the target behaviors across people, places, cues and settings and to assess if they could perform the behaviors when testing was delayed.

It must be emphasized that the curriculum provided an organized set of learning objectives which could be used as a base for a wide variety of other instructional programs. The curriculum described the specific instructional procedures employed to teach these specific students the target skills. If the curriculum is to be used with different students it should be adapted to those students' individual needs and situations. This could be done by adapting: 1) instructional procedures, 2) response requirements and/or 3) instructional tasks.

c. Measurement Procedures

Generally, direct and continuous data on student performance was collected during instructional intervention. A data sheet with rows that corresponded to each skill required by a component program of the curriculum was constructed and implemented (See Appendix D). As students performed the skills the teacher would score a "+" if the student performed a skill without the aid of verbal prompts, models or primes, and an "M" if the student performed a skill after the teacher modeled it and a "P" if the student had to be primed. Each instructional trial was defined as starting when the teacher cued students to respond. Generally, when students could perform the skills delineated by a program without any verbal prompts, models or primes on three successive trials, they were considered to have mastered the required skills. After students had mastered a skill, generalization probes were administered to determine if students could perform the skill in other places with different materials. To determine a student's entering level into the curriculum or a component program, pre-test or baseline measures were administered.

B. Parental Interactions

An essential component of the curriculum was the participation of the students' parents. Parental interactions provided the educational staff with input on existing skills and skills that were lacking. They facilitated the maintenance and generalization of acquired behaviors to the home environment (e.g., self-care skills). In addition, parents provided the support necessary to implement the sex education components of the curriculum. Initially, the implementation of a sex education curriculum was approached with intrepidation on the part of the educational staff. This was due primarily to lack of knowledge about parent and community reactions. After talking to administration, support was solicited from parents. An outline of a potential sex education curriculum and a conference report covering topics of concern were constructed to facilitate discussion of the program at parent-teacher conferences. The parents and the teacher then met in individual parent conferences to discuss the potential curriculum and complete the conference reports.

The conference reports indicated that most of the parents had not discussed bodily distinctions (including genital names) or sexual intercourse with their children. However, a majority of the parents stated that they had talked to their children about: self-care skills; acting like ladies or gentlemen; verbal and physical social contact with others;

and family life (sharing, cooperating, and so on). The parents' general concensus was that their children needed instruction on the skills delineated in the curriculum outline and a majority of them could not think of additional skills. Two of the parents requested that their children be taught appropriate time and places to masturbate and a third asked that her child be taught appropriate toileting after a bowel movement. Other areas of concern were their childrens' inappropriate (overfriendly-nondiscriminating) verbal and physical interactions with others, and inappropriate body posture and gestures. The parents were quite supportive of the potential curriculum and all expressed a desire for frequent reports on their child's progress.

Following the parent conferences, programs were devised and implemented for component programs of the curriculum outline. Close contact was maintained with the parents through telephone calls, notes, and conferences.

C. Components of Phase I of the Curriculum

The curriculum in Phase I was composed of five main components. These components consisted of:

1. Bodily Distinctions

The bodily distinctions component of the curriculum consisted of four parts: a) body parts; b) sex distinctions; man-woman, boy-girl with clothing; c) sex distinctions; man-woman, boy-girl without clothing; and d) bodily changes related to growth; man-boy, woman-girl.

a. Body Parts

The ability to discriminate and label body parts of others and self is a prerequisite skill to the programs on sex distinctions, bodily growth, family relationships, and social manners. Discrimination and labeling of the body parts--head, hair, eye, nose, mouth, ear, neck, shoulder, back, arm, elbow, wrist, hand, finger, chest, stomach, leg, knee, ankle, foot, and toe--were taught using the teacher, the student and unclothed representational figures in the classroom. For some students, the list of parts was broken into sets of 1-7 parts to facilitate learning. Discrimination and labeling of what will be referred to as genital parts, i.e., breast, nipple, penis, pubic hair, vagina, crotch, and buttocks were only taught on unclothed representational figures in the classroom; in addition, "navel" was taught with the genital parts because it is not visible with clothing on. Generalization of labeling genital body parts to unclothed others of the same sex and self was tested in a shower room. Parental consent and support was attained before generalization measures were administered. The program was divided into five phases: I) teaching discrimination of body parts on others; II) teaching labeling of body parts on others; III) teaching discrimination of body parts on self; IV) teaching labeling of body parts on self (The students were taught to discriminate and label body parts on others before themselves because they could see the entire body on others, as opposed to viewing only parts on self); and V) generalization measures of labeling selected body parts on self and others.

b. Sex Distinctions; Man-Woman, Boy-Girl With Clothing

This program was introduced to assess the students' abilities to discriminate the sex of clothed classmates and teachers and on pictures of family members and unfamiliar people. Apparel features upon which students could make sex distinctions were delineated. Twenty-seven pictures of unfamiliar people which depicted various combinations of these variables were selected for testing purposes. Pictures of family members were obtained from the students' parents. The students' abilities to discriminate the sex of clothed classmates and teachers were tested on actual people. Baseline measures were obtained and only one student lacked the skill. That student was trained across people and pictures on an informal basis. If a number of students needed this training a formal training program would have been implemented.

c. Sex Distinctions; Man-Woman, Boy-Girl Without Clothing

The purpose of this program was to teach the students to discriminate and label sex distinctions (body parts from which sex can be determined) on representational figures of unclothed men and women and unclothed boys and girls. Since discrimination and labeling of body parts is a prerequisite for making sex distinctions, this program was implemented subsequent to a student's completion of the body parts program. The instructional sequence consisted of baselining the students' abilities to discriminate and label sex distinctions on representational figures of unclothed men and women, boys and girls. Those students who failed to meet criterion in the baseline measures were instructed on representational figures. When the students met criterion on sex distinctions on unclothed representational figures, generalization of sex distinctions (discriminating and labeling the distinction) was tested on unclothed others of the same sex and self. The generalization phase was conducted in a shower room setting (male student with male teacher; female student with female teacher). This measure assessed the student's ability to make sex distinctions in a different situation and to make them when not preceeded closely in time by instruction. Prior to the implementation of the generalization phase, parental support and consent was obtained.

d. Bodily Changes Related to Growth; Man-Boy, Woman-Girl

The purpose of this program was to teach the students to discriminate and to express how they discriminated men from boys and women from girls on unclothed figures. The purpose of the program was to teach the students to recognize and be able to express their own body growth, as well as that of others, as related to puberty. On unclothed representational figures, the students were taught to use underarm hair, hair on arms, penis size, leg hair, and chest hair (optional) to discriminate men from boys and to use breast size, hair on arms, pubic hair, underarm hair (optional) and leg hair (optional) to discriminate women from girls. Features labeled "optional" are those which are not always useful in making the discrimination. The students were taught to make the discriminations on figures with and without these features. Detachable optional features were made and throughout the program the features were intermittently attached in the various possible combinations. The height of the figures was controlled at five feet so that students were required to use body features other than height to make growth discriminations; height can often be an inappropriate dimension for determining age, especially in the severely handicapped population. The program was divided into three phases: I) teaching students to discriminate and to express how they discriminated unclothed men from boys; II) teaching students to discriminate and to express how they discriminated unclothed women from girls; and III) teaching students to discriminate and to express how they discriminated unclothed men, boys, women and girls.

2. Self Care Skills

An essential component of the curriculum was teaching students skills which would facilitate independent functioning in their present and potential home environments. These skills encompassed basic grooming, dressing, domestic maintenance, and cooking skills (see Hamre, 1974, for more detailed program analysis and description). The premenstrual program was added to other self-care skills during Phase I.

a. Premenstrual Training

The premenstrual training program was designed to teach the identification of the menstrual period and a hygienic routine to follow once it was identified.[2] It was felt that teaching the students to use sanitary equipment and to identify their periods from simulated menstrual blood prior to actual menstruation, would facilitate following an appropriate hygienic routine at an actual occurrence. Also, it was hoped that the "fear" often associated with the onset of menstruation would be lessened. Therefore, menstrual hygiene was taught to the students before their first period. Prior to the designing of this program, the parents of the students to be involved were contacted and asked what type of sanitary equipment they wanted their daughter to use. From this information a program was designed and individualized for each student. A copy of the premenstrual program, with adaptations for home use, was given to the parents to aid in maintaining and generalizing the skill. The program was divided into five phases: I) teaching the students identification of menstruation; II) teaching the students a hygienic routine subsequent to identification; III) teaching the students to request sanitary equipment; IV) teaching the students to receive the equipment and bathroom preparation; and V) teaching the students the application of selected sanitary equipment.

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[2] We wish to acknowledge Paula Dedrick's significant contribution to the design and implementation of the premenstrual program.

3. Family Members and Relationships

The purpose of this component of the curriculum was to teach the students the names of all the members of their immediate family and their relationships (e.g., brother, sister). Pretest data indicated that students lacked this skill. The parents of the students were an essential part of the program in that they provided the teacher with pictures and names of all family members. The program was divided into two phases: I) teaching names of family members; and II) teaching family relationships. Each phase had a terminal objective which was broken into subobjectives of teaching students to perform the skills when: a) presented pictures of family members and cued to name the family members and relationships; and b) presented only verbal cues to name family members and relationships. After learning to name their own family members and the relationship, each student's knowledge of general family relationships was tested through requesting the student to indicate the father, mother, sister(s) and brother(s) on pictures of unfamiliar families. All students generalized the skill.

4. Social Interactions

A detailed description of the social skills program may be found in Williams, Hamre-Nietupski, Pumpian, McDaniel and Wheeler (1975), and Williams, Hamre-Nietupski, Pumpian, McDaniel and Wheeler (1976). The social skills program was primarily concerned with teaching students appropriate cooperative and isolative social skills to replace the inappropriate verbal and physical interactions they presently engaged in or might display in the future. Cooperative social interaction skills consisted of five basic components:

1. recognition of the appropriate time and place for a social interaction;
2. appropriately initiating interactions;
3. appropriately receiving requests of interactions;
4. appropriately sustaining interactions;
5. appropriately terminating interactions.

Isolative consisted of four basic components:

1. engaging in isolative activities at appropriate times and in appropriate places;
2. selecting and locating an available toy/game/object appropriate for an independent activity (e.g., students go to free time cabinet and select an activity they want to engage in);
3. sustaining an appropriate interaction with the selected toy/game/object (e.g., completion of a puzzle, completion of a page or chapter, completion of work task);
4. properly terminating the activity (e.g., cleaning up the play area, putting away work materials).

Generally, students perform social skills in relation to specific tasks. If the students cannot perform the tasks, it is unlikely that they will perform or learn social skills. Thus, one of the first components of the social skills program was to teach students to perform specified tasks. Then they were taught the social skills related to the tasks. The tasks selected were carefully matched to the students' functioning levels. Students were taught skills related to cooperative and isolative social activities and to engage in them at appropriate times, places and frequencies. The tasks available to the students will influence and in some cases determine the social activities they engage in. That is, if only tasks more applicable to isolative activities are available (e.g., finger paints) students will most likely engage in isolative activities. Similarly, students will most likely only engage in cooperative activities if only tasks more applicable to cooperative activities are available (e.g., games which require two or more students). The purpose of the program was to teach students to appropriately engage in isolative activities and cooperative social interactions and many tasks which facilitate such behavior were made readily available. In relation to social activities which involve others, students were taught to appropriately verbally initiate, receive, sustain and terminate the activities. When teaching students social skills they were paired with peers who had acquired some basic skills and with prompting from adult control figures could teach basic (initiating, receiving, sustaining and terminating) and complex social skills. Appropriate peer pairing facilitated the maintenance and generalization of social skills. Students were taught social skills which are appropriate across the environments (home, school) the individuals frequently inhabit. To provide a brief overview of the program the instructional phases are briefly described below:

> Phase I: Teaching students to perform tasks and the social skills involved in the tasks when directed by the teacher. and then teaching students to direct the teacher through the tasks.
>
> Phase II: Teaching students to perform tasks cooperatively with another student and isolatively. Students learning a new task were paired with a student who had already learned the task to facilitate peer-peer instruction.
>
> Phase III: Teaching students to perform tasks and the social skills involved with two or more students.

5. Social Manners

The purpose of the social manners component of the sex education curriculum was to teach the students socially appropriate dressing, walking, sitting, and general posturing. The basic notion underlying the program was to teach the students proper hand placement, leg placement and general posturing to decelerate such suggestive behaviors as hands on genitals, public masturbation, unbuttoning of blouses in public, and unwittedly suggestive posture. Prerequisites for the social manners program were mastery of dressing skills (e.g., zipping, snapping, tucking in) and completion of the body parts program.

Due to differences in clothing, posture, and walking requirements, separate programs were designed for male and female students. The skills were taught through modeling. The program was composed of two basic phases:

> Phase I: Teaching Acceptable Physical Mannerisms. This phase included such skills as upright posture, upright head position, looking at people when interacting, facial expressions (e.g., tongue in, mouth closed), deceleration of self-stimulation, and appropriate affect as displayed by general body posturing.
>
> Phase II: Teaching Alternative Hand and Leg Placement to Avoid Suggestive Posture. This phase included such skills as appropriate sitting at a desk with a skirt or pants on, in a chair with a skirt or pants on, and on the floor with a skirt or pants on.

Instruction was conducted on an informal basis with no direct measurement. Once the students had learned appropriate dressing, grooming, self-care skills, and had learned body parts, they readily acquired social manners through modeling and verbal prompting. Throughout the day the teacher would model sitting and standing like a grownup for the students. That is, if the students were at desks, grownup sitting at a desk was modeled; if the student were on the floor, grownup sitting on the floor was modeled; if the students were walking, grownup walking was modeled, etc. When students exhibited inappropriate posture or hand placement the teacher would verbally prompt them to sit, stand or walk like "grownups" or model the appropriate posture. After a few demonstrations the students were reminding each other to demonstrate appropriate posturing and hand placement.

II. PHASE II OF THE SEX EDUCATION AND SOCIAL SKILLS CURRICULUM

A. Introduction

1. Rationale

After the sex education curriculum had been implemented for two years, a new self-contained class for adolescent severely handicapped students was established in a regular middle school. Six students were involved in Phase II of the Curriculum. Four of those students had previously been in a segregated self-contained classroom for severely handicapped students and two students had been in a self-contained classroom for severely handicapped students, within a regular elementary school. All six students had acquired the basic skills of the sex education curriculum from their previous teachers.

The six students involved in Phase II of the Sex Education and Social Skills Curriculum were 13-16 years of age with IQ scores ranging from 35-51. The students had previously acquired many sex education and social skills during Phase I of the Curriculum in the areas of bodily distinctions, self-care, family relationships, social interactions, and social manners. Because students would be expected to function appropriately in the less restrictive environments of the middle school and in semi-independent residential group homes and/or apartments in the near future, the parents and teacher decided that more sophisticated sex education and social skills were needed. Therefore, the skills learned in Phase I of the Sex Education Curriculum were extended.

2. Methodology

Methodology for Phase II of the Sex Education Curriculum was the same as in Phase I of the Curriculum. (See "Methodology" in Phase I above)

B. Parental Interactions

The participation of the students' parents was again an essential component of the curriculum. Parental interactions provided the teacher with input on the "values, attitudes, and emotions" (See Appendix A) the parents wanted imparted to their son/daughter in regards to sexual relations, as well as possibilities for future living environments, possible sexual relationships, birth control, and venereal disease information. The parents and teacher agreed on the specific skills to be taught and the parents agreed to reinforce skills learned at school in the home to facilitate maintenance and generalization. After securing the support of additional (middle school) administration, the first step in actual program implementation was to solicit the support of the parents in designating extended skills to be taught. An outline of potential extended skills and a conference report covering topics of concern (See Appendix A) were constructed to facilitate discussion of the extended program at parent-teacher conferences. Individual parent conferences were held to discuss the extended curriculum and to complete the conference reports. In an attempt to provide the parents with additional information on sex education for the handicapped, a booklet Love, Sex and Birth Control for the Mentally Retarded: A Guide for Parents (Kempton, Bass, Gordon, 1972) was given to each parent at the conference. The booklet was considered helpful as a review of topics similar to those being considered for the potential Phase II Sex Education and Social Skills Curriculum.

The results of the conference reports (See Table 2) indicated that the majority of parents expected their son/daughter to be living away from them in the future (hopefully in less restrictive environments where sex education and social skills would be essential for appropriate functioning) and to be dating in a couple and/or group situation. All of the parents indicated a desire to have "simple basic information" about human reproduction and birth control taught to their son/daughter, and all expected their son/daughter to be engaging in some type of sexual behavior, from holding hands to intercourse. The majority of parents also requested that venereal disease information be taught. Each parent was also given the opportunity to state the "values, attitudes and emotions" they wanted imparted to their son/daughter whenever sexual relations were discussed at school.

Two of the parents requested additional (extended) menstrual hygiene training for their daughters to include a calendar routine and a further change from sanitary napkins to tampons. Another request was for training female students self-breast examination techniques.

The parents were again very supportive of the implementation of an extended sex education curriculum. All parents expressed a desire for frequent home-school contacts on the topics being covered and the progress of their son/daughter. Based upon information from the parent conferences, Phase II of the Sex Education and Social Skills Curriculum was devised and implemented. Close contact was maintained with parents through telephone calls, notes and conferences.

Updated lists of "References for Parents" and "Books for Youth" (See "V. REFERENCES") were later given to the parents of each student. The parents' list contained references on sex education and social skills information for parents of severely handicapped students. The youth list contained books presenting simple sex education and social skills information which could be read to severely handicapped students by their parents and/or by teachers and/or by the youth him/her self. Most of the books for youth were used to supplement sex education programs in the students' classroom. Use of these books or similar ones was recommended to parents to aid in further sex education training in the home.

Table 2

Parent Conference Report Results; Phase II of Curriculum

Topical Areas	Future Possibilities for son/daughter	
	Yes	No
Future living environment away from parent's home	5	1
Dating	5	1
Marriage or a similar arrangement	3	3
Engaging in sexual behaviors including holding hands, hugging, kissing, touching, intercourse, masturbation	6	0
Knowledge of human reproduction needed	6	0
Venereal disease information needed	5	1
Any additional information (in addition to potential topics) needed	3	3

C. Components of Phase II of the Curriculum

1. Growth Distinctions and Reproduction

a. Growth Distinctions; Babies - Grownups

This program was an extension of the skills taught in "Bodily Distinctions" in Phase I of the Sex Education and Social Skills Curriculum. The purpose of the program was to assess the student's abilities to discriminate between babies (under 1 year old) and "grownups" (teenage through 75 years old) and also to assess their abilities to label babies as "grownup" or "not grownup". Verification of these skills was needed before proceeding to the "Reproduction" program dealing with "grownups" producing babies. Features upon which students might make growth (age) distinctions were delineated, (See list, Appendix B). Ten pictures each of unfamiliar babies and grownups representing both sexes and different age groups from teenage through 75 years were selected for testing purposes. The basic procedure consisted of obtaining a baseline measure of the behavioral objectives and then administering informal instruction to any student who failed to meet criterion. Criterion was set at 90% correct response on at least one trial.

The program for discrimination of growth distinctions between babies and grownups was supplemented by activities which could be used during formal instruction and throughout the day. A few of the activities used are listed below:

1. Reading - Read stories about human and animal babies and grownups and require students to discriminate babies from grownups and to indicate how they can tell the difference.
2. Display a chart of pictures of human and animal babies and grownups. Discuss distinctions between babies and grownups.

3. Match pictures of baby animals to the appropriate parent(s). Also discuss names of different animal babies.

4. Provide a small flip chart of humans and animals and their babies in the students' free time area. Students can look at the pictures by themselves or with a friend during free time.

5. Bring in real baby animals and grownup animals and human babies, if possible.

6. Take a trip to the zoo. Discuss distinctions between baby and grownup animals, especially when animal families can be seen.

Task Analysis

Purpose:

1. Discrimination of growth distinctions between babies and adults.

2. Distinctions between babies as "not grownup" people and adults as "grownups."

3. Preparation for discrimination between babies and adults in "Reproduction" program.

Materials:

1. Twenty pictures of unfamiliar babies and adults of both sexes and different age groups (See Appendix B).

2. Data sheet.

Objective:

When presented with each of the twenty pictures of unfamiliar babies and adults representing both sexes and different age groups and asked, "Tell me if this is a baby or a grownup, S," and, if the picture is of a baby, "Tell me if this baby is grownup or not grownup, S," the student will correctly label "baby" or "grownup" and "not grownup" on 90% of the pictures on at least one trial.

Baseline:

The baseline was identical to the objective as stated above with the teacher recording correct and incorrect responses.

Results and Discussion:

All of the S's who were tested met criterion during the baseline measures (See Table 3).

Table 3

Growth Distinctions: Babies - Grownups

Students	Baseline-Unfamiliar Babies and Grownups
S1*	
S2*	
S3	100%
S4**	
S5*	
S6	100%
S7	100%
S8***	100%
S9***	100%

*S1, S2 and S5 were transferred to another school and were not involved in any program in the Phase II Sex Education Curriculum.

**S4 attended another school but re-entered this class again late in the year. Her data is not reported here.

***S8 and S9 were taught Phase I of the Sex Education Curriculum at another school. They were transferred into this classroom at this point.

b. Growing Up; Distinctions Between (Little) Babies - Children - Grownups

The teacher observed that although the students could correctly label distinctions between pictures of unfamiliar babies and grownups (See Table 3), the students did not seem to visualize growth as a process, (i.e., that a baby is growing to be a child and a child is growing to be a grownup). The verbal comments of some of the students to the teacher also indicated that they did not visualize themselves as ever having been a baby and then a child, but only a grownup as they were now. The purpose of this program was to assess the student's abilities to discriminate between (little) babies (0-1 year), children (1-12 years) and grownups (13-75) on pictures of unfamiliar people and to assess students' abilities to discriminate self-growth on pictures of themselves as babies, children, and grownups, and to order the growing process by sequencing pictures of themselves.

Features upon which students could make growth (age) distinctions were chosen (See list, Appendix B). Six pictures of each of the three growth (age) groups representing both sexes and different ages within the groups were selected for testing purposes. Pictures of the students were obtained from their parents. The basic procedure consisted of obtaining a baseline measure of the behavioral objective and then informally instructing any student who failed to meet criterion. Criterion was set at 90% correct (27 out of 30) on at least one trial on unfamiliar people and 100% correct on at least one trial on the student's own pictures.

The program was supplemented with fun activities and activities which could be used during the program time and throughout the day. A few of the activities used are listed below:

1. Talk to students about "acting like grownups" as opposed to "acting like babies"; model "grownup" behaviors and praise students throughout the day for "acting like a grownup."
2. Use life size baby and child size dolls and the students themselves to demonstrate differences in size and activities.
3. Look at photograph albums of the students and teachers themselves growing up.
4. Read books about "growing up."
5. Supplement the program with a science unit on "growing" plants. Have students start plants from seed, care for them, and watch them grow. Point out at various stages that plants are growing, like people grow.
6. Put a large envelope of pictures in students free time area. On the envelope write "Is this a baby or child or grownup?" Students can classify the pictures by themselves or with a friend.

Task Analysis

Purpose:

1. Discrimination of growth distinctions between babies, children and adults.
2. Distinctions between babies and children as "not grownup" people and adults as "grownups."
3. Discrimination of stages of self-growth.
4. Sequencing stages of self-growth to demonstrate comprehension of the process of growing.
5. Preparation for discrimination between babies, children and adults in "Reproduction" program.

Materials:

1. Eighteen pictures (six from each age group) of unfamiliar babies, children and adults of both sexes and different age groups (See Appendix B).
2. Three "3x5" cards printed with the words "little baby," "child," and "grownup."
3. At least three pictures of each student, showing the student as a small baby, child, and a recent "grownup" picture.
4. "12x24" paper labeled "Little baby," "Child," "Grownup" lengthwise across the paper, for student to sequence their own pictures on.
5. Large chart on which to display students pictures.
6. Data sheet.

Objective:

When presented with each of eighteen pictures of unfamiliar babies, children and adults representing both sexes and different age groups and asked, "Tell me if this is a (little) baby, a child, or a grownup, S," as the teacher points to the cards showing the words "little baby," "child," "grownup," the student will correctly label "(little) baby," "child," or "grownup" on 90% of the pictures on at least one trial.

And when presented with each of at least three pictures of self as a baby, child, and grownup in random order and asked, "Tell me if this is a picture of you when you were a little baby, a child, or a grownup, S," as the teacher points to the cards showing the words "little baby," "child," "grownup," the student will correctly label "(little) baby," "child," or "grownup" with 100% accuracy on at least one trial.

And when presented with the same three pictures of self in front of the student in random order, and with a paper labeled "little baby," "child," "grownup" in front of the student and when told, "Show me how you were growing. Put your pictures in order on this paper, S" the student will correctly sequence his or her own pictures with 100% accuracy on at least one trial.

Baseline:

The baseline was identical to the objectives as stated above with the teacher recording correct and incorrect responses.

Results and Discussion:

Five students (S3, S6, S7, S8, S9) were originally tested on pictures of unfamiliar people. Three of the students (S6, S7, S8) met criterion on the baseline measure (See Table 4). The two students (S3, S9) who did not meet criterion were given informal instruction using different pictures and dolls of various sizes. Following informal instruction S3 and S9 were retested and met criterion at that time. A sixth student, S4, re-entered the class late in the school year at which time she was tested and taught informally (data for S4 is not reported here) on pictures of unfamiliar people.

Four students (S6, S7, S8, S9) of the five tested on their own pictures met criterion on the baseline measure. One student, S3, did not meet criterion and she was given informal training on pictures of herself concurrent with her training on pictures of unfamiliar people. When retested, S3 met criterion.

Table 4

Growing Up; Distinctions Between (Little) Babies - Children - Grownups

Students	Baseline Unfamiliar Babies-Children-Grownups	Retest Unfamiliar Babies-Children-Grownups	Baseline on Self Growth	Retest on Self Growth
S3	77%	93%	63%	100%
S4*				
S6	100%		100%	
S7	100%		100%	
S8	93%		100%	
S9	66%	90%	100%	

*S4 attended another school but re-entered this class again late in the year. Her data is not reported here.

c. Reproduction

This section of the curriculum was designed to teach the students to verbally describe the reproductive process. The program was divided into four phases:

I) teaching students to verbally explain intercourse;

II) teaching students to verbally explain intercourse and conception;

III) teaching students to verbally explain intercourse, conception, and pre-natal growth;

IV) teaching students to verbally explain intercourse, conception, pre-natal growth, and birth.

Each phase was further divided into three parts:

I) vocabulary;

II) verbal explanation with visual aids, and

III) verbal explanation without visual aids.

Before being taught about the reproductive process, the students were required to have mastered skills in discriminating and labeling body parts; labeling sex distinctions between man-woman, boy-girl; labeling body changes related to growth between man-boy, woman-girl; expressing specific and general family relationships; engaging in simple social interaction skills; expressing growth distinctions between babies and grownups; expressing growing up, distinctions between (little) babies, children and grownups.

The results of the parent conferences (See Table 2) for Phase II of the Curriculum indicated that all of the parents involved wanted their sons or daughters to be taught "simple, basic information" about the reproductive process. During these conferences each parent was asked to indicate the "values, attitudes, emotions" that they wanted imparted to their son/daughter in regards to sexual relations. Therefore, whenever any sexual behaviors (e.g., intercourse, conception, pre-natal growth, birth, holding hands, hugging, kissing, touching) were discussed or taught, they were presented only within the context of the attitudes designated by the parents. That is, students were told that sexual relations are only with people who are very "special," whom we really "love" and intercourse specifically is generally for "married people." Information on determining people to interact with, appropriate times and places for interactions and types of activities to engage in were consistently discussed. Data was not taken on these aspects. The parents and teacher agreed to cooperate in discussing the technical and emotional aspects of sexual relations in a similar manner at home and in school.

Instruction on each phase of the reproductive process consisted of three segments:

1. modeling appropriate verbal explanations;
2. tests and instruction, and
3. discussion of appropriate attitudes, emotions, people, times, places involved.

In the modeling segment the teacher modeled appropriate verbal sequences and had the students imitate. This was followed by a segment that consisted of individual tests and instruction. Concurrent with and/or following the test and instruction, the teacher discussed and encouraged the students to discuss and ask questions about emotional aspects of sexual relations. Data was taken only on the test and instruction segments. Criterion for each phase and each part was set at 100% accuracy for three consecutive trials.

Vocabulary and verbal explanations were all taught on unclothed cutout figures, supplemented with overhead transparencies and children's sex education books.

The instructional sequences was as follows:

1. Pretest terminal objective (Part III) of Reproduction program, Phase IV.

2. Pretest phase terminal objective (Part III) of Phase II, Intercourse and Conception.

3. Teach Phase I, Intercourse

    a. Part I - vocabulary
    b. Part II - verbal explanation with visual aids
    c. Part III - phase terminal objective of Phase I, verbal explanation.

4. Retest terminal objective (Part III) of Reproduction program, Phase IV.

5. Pretest phase terminal objective (Part III) of Phase II, Intercourse and Conception.

6. Teach Phase II, Intercourse and Conception

  - a. Part I - vocabulary
  - b. Part II - verbal explanation with visual aids
  - c. Part III - phase terminal objective of Phase II, verbal explanation.

7. Retest terminal objective (Part III) of Reproduction program, Phase IV.

8. Pretest phase terminal objective (Part III) of Phase III, Intercourse, Conception and Pre-Natal Growth.

9. Teach Phase III, Intercourse, Conception and Pre-Natal Growth

   - a. Part I - vocabulary
   - b. Part II - verbal explanation with visual aids
   - c. Part III - phase terminal objective of Phase III, verbal explanation.

10. Retest terminal objective (Part III) of Reproduction program, Phase IV; this serves as pretest for Phase IV.

11. Teach Phase IV, Intercourse, Conception, Pre-Natal Growth, and Birth

    - a. Part I - vocabulary
    - b. Part II - verbal explanation with visual aids
    - c. Part III - terminal objective of Reproductive program, verbal explanation; this serves as post test for Reproduction program.

The instructional sequence involved first pretesting the terminal objective of the Reproduction program. Before instruction on a phase, a pretest of the phase terminal objective of that phase was administered. Part III of each phase served as the post-test for that phase. After students had reached criterion on the phase terminal objective (Part III) of Phases I, II, III, the program terminal objective Phase IV (Part III) was to be retested. Upon reaching criterion on a phase (I, II, III) a rebaseline of the program terminal objective afforded an analysis of transfer of learning from one phase to another. The retest of the program terminal objective Phase IV (Part III) after Phase III should serve also as the pretest for Phase IV.

The program for teaching about the reproductive process was constantly supplemented with activities which required the students to demonstrate their knowledge across materials. A few of these activities are provided.

1. Overhead transparencies - Use teacher-made and/or commercially made transparencies showing intercourse, conception, prenatal growth, birth.

2. Reading - Read about intercourse, conception, pre-natal growth, birth and feelings from sex education books for children (See "V. REFERENCES," "Books for Youth"). When discussing intercourse, for example, read only the sections about intercourse and rubber band off the rest of the book. Children's books used were included on bibliographies given to parents, so parents could also use these books with the students at home.

3. Free-time reading - After reading the books to the students, these books about human and animal reproduction can be provided in the students' free time area for them to look at by themselves.

4. Filmstrips or movies - Filmstrips and movies about human and animal reproduction can be shown and discussed.

Task Analysis

Purpose:

1. Recognition and explanation of process of intercourse.
2. Recognition and explanation of process of conception.
3. Recognition and explanation of process of prenatal growth.
4. Recognition and explanation of process of birth.
5. Recognition of emotions involved with sexual relations.
6. Extension of "Bodily Distinctions" program.
7. Extension of "Growth Distinctions" program.

Materials:

1. Laminated cut-out figure *, approximately 24 inches tall, of unclothed adult male with erect penis; this figure fits together with female to simulate intercourse.

2. Laminated cut-out figure*, approximately 24 inches tall of unclothed adult female with opening in vagina; this figure fits together with male to simulate intercourse.

3. Detachable laminated cut-out representation of penis with sperm ejaculation; this part fits over the cut-out male figure.

4. Detachable laminated cut-out* representation of uterus with egg and sperm uniting; this part fits over the cut-out female figure.

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*All laminated cut-out representational figures and detachable parts were teacher-made.

5. Four laminated cut-out figures*, approximately 24 inches tall, of unclothed females with fetus inside representing 1 month, 3 months, 6 months, and 9 months of prenatal growth.

6. "3 x 12" cards with vocabulary words printed on them.

7. Pointer (to avoid direct touch response on bodies).

8. Data sheets.

9. Individual graphs.

Vocabulary: (key words to be used in sequence)

1. "mans's"
2. "erection"
3. "man's"
4. "penis"
5. "into"
6. "womans's"
7. "vagina"
8. "man's"
9. "sperm"
10. "from"
11. "penis"
12. "into"
13. "woman's"
14. "uterus"
15. "sperm"
16. "fertilizes"
17. "egg"
18. "fertilized egg"
19. "grows (into)"
20. "baby"
21. "baby"
22. "grows"
23. "(about) 9 months"
24. "baby"
25. "comes out (through)"
26. "woman's"
27. "vagina"

Objectives:

Phase I, Intercourse: With no visual aids present, T asks, "Tell me how a man and woman have intercourse, S." S will verbally state an appropriate explanation containing seven key vocabulary words in sequence (as listed in numbers 1-7 in "Vocabulary") with 100% accuracy on three consecutive trials.

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*All laminated cut-out representational figures and detachable parts were teacher-made.

Phase II, Intercourse and Conception: With no visual aids present, when T asks, "Tell me how a baby gets started, S" S will verbally state an appropriate explanation containing 17 key words in sequence (as listed in numbers 1-17 in "Vocabulary") with 100% accuracy on three consecutive trials.

Phase III, Intercourse, Conception, and Pre-Natal Growth: With no visual aids present, when T asks, "Tell me how a baby gets started and grows, S" S will verbally state an appropriate explanation containing 23 key words in sequence (as listed in numbers 1-23 in "Vocabulary") with 100% accuracy on three consecutive trials.

Phase IV, Intercourse, Conception, Pre-Natal Growth, Birth: With no visual aids present, when T asks, "Tell me how people get babies, S" or (alternate cue) "Tell me how babies are made, S" or (alternate cue) "Tell me how a baby gets started, grows and is born, S" S will state an appropriate explanation containing 27 key words in sequence (as listed in numbers 1-27 in "Vocabulary") with 100% accuracy on three consecutive trials.

Teaching Procedure*

Baselines:

The program terminal objective as delineated in Phase IV, Part III was baselined before instruction commenced. The phase terminal objectives for Phase I-III (Part III in each case) were baselined before instruction commenced on those phases; the program terminal objective (Phase IV, Part III) was retested following criterion performance on each Phase I-III.

Phase I: With no visual aids present, T asks, "Tell me how a man and woman have intercourse, S." T says "Thank you" regardless of the response(s) and records the response(s) as "+" or "-" on the data sheet. A correct response must be in correct sequence.

Phase II: With no visual aids present, T asks, "Tell me how a baby gets started, S." T says "Thank you" regardless of the response(s) and records the response(s) as "+" or "-" on the data sheet. A correct response must be in correct sequence.

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*The teaching procedure is listed as it was originally planned. Because of end of the school year time limits and rapid student progress through the Reproduction program, this teaching procedure was revised; Phases III and IV were combined.

Phase III: With no visual aids present, T asks, "Tell me how a baby gets started and grows, S." T says "Thank you" regardless of the response(s) and records the response(s) as "+" or "-" on the data sheet. A correct response must be in correct sequence.

Phase IV: With no visual aids present, T asks, "Tell me how people get babies, S" or (alternate cue) "Tell me how babies are made, S" or (alternate cue) "Tell me how a baby gets started, grows and is born, S." T says "Thank you" regardless of the response(s) and records the response(s) as "+" or "-" on the data sheet. A correct response must be in correct sequence.

Teaching Steps:

Phase I, Teaching Verbal Explanation of Intercourse:

Part I - Vocabulary

1. Modeling: T points* to body part on cut-out figure and says, "This is (body part)."

2. Testing and Instruction: Immediately subsequent to each modeling session the following testing and instructional procedures were implemented.

    a. In the presence of the adult male and female cut-out figures, T points to body part and asks, "What is this, S?"

        1) Correct response-verbal praise from T and other Ss.

        2) Incorrect response-T says, "No, S, this is (body part)." "What is this, S?" T repeats the model until S imitates the correct verbal response.

3. Teacher-Student Discussion: Discussion of appropriate attitudes (as designated by parents at parent conferences), emotions, people, times, places involved. No data taken on discussion.

4. Criterion: Follow the above procedure until S has three consecutive correct trials.

Part II - Verbal Explanation with Visual Aids

1. Modeling: T presents the adult male and female cut-out figures. T says, "This is how a man and woman have intercourse." T** manipulates the cut-out figures to demonstrate

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*All pointing to body parts was done with a pointer.

**The teacher manipulates the cut-out figures at all times. The students do not manipulate the figures.

the cut-out figures to demonstrate intercourse as she states an appropriate verbal explanation, containing seven key words in sequence, "man's, erection, man's, penis, into, woman's, vagina."

2. Testing and Instruction: Immediately subsequent to each modeling session the following testing and instructional procedures were implemented.

    a. In the presence of the adult male and female cut-out figures, T asks, "Tell me how a man and woman have intercourse, S." T manipulates the cut-out figures to demonstrate intercourse as S states verbal explanation.

        1) Correct response(s) in sequence-verbal praise from T and other Ss.

        2) Incorrect response(s)-T says, "No, S, this is how a man and woman have intercourse." T repeats the model until S imitates the correct verbal response(s) in sequence.

3. Teacher-Student Discussion: Discussion of appropriate attitudes, emotions, people, times, places involved. No data taken on discussion.

4. Criterion: Follow the above procedure until S has three consecutive correct trials.

Part III - Verbal Explanation Without Visual Aids

Modeling, Testing and Instruction, Discussion and Criterion are the same as for Phase I, Part II except all visual aids are removed.

Phase II, Teaching Verbal Explanation of Intercourse and Conception:

Part I - Vocabulary

Modeling, Testing and Instruction, Discussion and Criterion procedures are the same as for Phase I, Part I.

Part II - Verbal Explanation With Visual Aids

1. Modeling: T presents the cut-out figures of adult male with sperm and female with detachable uterus. T says, "This is how a baby gets started." T manipulates the cut-out figures to demonstrate intercourse and conception as she states an appropriate verbal explanation containing 17 key words in sequence, "man's, erection, man's, penis, into, woman's, vagina, man's, sperm, from, penis, into, woman's, uterus, sperm, fertilizes, egg."

2. Testing and Instruction: Immediately subsequent to each modeling session the following testing and instructional procedures were implemented.

    a. In the presence of the adult male and female cut-out figures, T asks, "Tell me how a baby gets started, S." T manipulates the cut-out figures to demonstrate intercourse and conception as she states appropriate verbal explanation.

        1) Correct response(s) in sequence-verbal praise from T and other Ss.

        2) Incorrect response(s)-T says, "No, S, this is how a baby gets started." T repeats the model until S imitates the correct verbal response(s) in sequence.

3. Teacher-Student Discussion: Discussion of appropriate attitudes, emotions, people, times, places involved. No data taken on discussion.

4. Criterion: Follow the above procedures until S has three consecutive correct trials.

Part III - Verbal Explanation without Visual Aids

Modeling, Testing and Instruction, Discussion and Criterion are the same as for Phase II, Part II except all visual aids are removed.

Phase III, Teaching Verbal Explanation of Intercourse, Conception and Pre-natal Growth:

Part I - Vocabulary

Modeling, Testing and Instruction, Discussion and Criterion procedures are the same as for Phase I, Part I.

Part II - Verbal Explanation with Visual Aids

1. Modeling: T presents cut-out figures of male with sperm, female with detachable uterus, four female figures representing 1, 3, 6, and 9 months of pre-natal growth. T says, "This is how a baby gets started and grows." T manipulates the cut-out figures to demonstrate intercourse, conception, and pre-natal growth as she states an appropriate verbal explanation containing 23 key word/phrases in sequence, "man's, erection, man's, penis, into, woman's, vagina, man's, sperm, from, penis, into, woman's, uterus, sperm, fertilizes, egg, fertilized egg, grows (into), baby, baby, grows, (about) 9 months."

2. Testing and Instruction: Immediately subsequent to each

modeling session the following testing and instructional procedures were implemented.

a. In the presence of the male and female cut-out figures and detachable parts (as listed in Part II, Modeling above), T asks, "Tell me how a baby gets started and grows, S." T manipulates the cut-out figures to demonstrate intercourse, conception and pre-natal growth as S states verbal explanation.

   1) Correct response(s) in sequence-verbal praise from T and other Ss.

   2) Incorrect response(s)-T says, "No, S, this is how a baby gets started and grows." T repeats the model until S imitates the correct verbal response(s) in sequence.

3. Teacher-Student Discussion: Discussion of appropriate attitudes, emotions, people, times, places involved. No data taken on discussion.

4. Criterion: Follow the above procedure until S has three consecutive correct trials.

Part III - Verbal Explanation without Visual Aids

Modeling, Testing and Instruction, Discussion and Criterion are the same as for Phase III, Part II except all visual aids are removed.

Phase IV, Teaching Verbal Explanation of Intercourse, Conception, Pre-natal Growth and Birth:

Part I - Vocabulary

Modeling, Testing and Instruction, Discussion and Criterion procedures are the same as for Phase I, Part I.

Part II - Verbal Explanation with Visual Aids

1. Modeling: T presents cut-out figures of adult male with sperm, female with detachable uterus, four female figures representing 1, 3, 6, and 9 months of pre-natal growth, and female with baby descending through birth canal. "This is how people get babies" or (alternate cue) "This is how babies are made" or (alternate cue) "This is how a baby gets started, grows and is born." T manipulates the cut-out figures to demonstrate intercourse, conception, pre-natal growth and birth as she states an appropriate verbal explanation containing 27 key words/phrases in sequence, "man's, erection, man's, penis, into, woman's, vagina, man's, sperm, from, penis, into, woman's, uterus, sperm, fertilizes, egg, fertilized egg, grows (into), baby, baby, grows, (about) 9 months, baby, comes out through, woman's, vagina."

2. Testing and Instruction: Immediately subsequent to each modeling session the following testing and instructional procedures were implemented.

   a. In the presence of the male and female cut-out figures and detachable parts (as listed in Part II, Modeling above), T asks, "Tell me how people get babies, S" or (alternate cue) "Tell me how babies are made, S" or (alternate cue) "Tell me how a baby gets started, grows and is born, S." T manipulates the cut-out figures to demonstrate intercourse, conception, pre-natal growth, and birth as S states verbal explanation.

      1) Correct response(s) in sequence-verbal praise from T and other Ss.

      2) Incorrect response(s)-T says, "No, S, this is how a baby gets started, grows, and is born." T repeats the model until S imitates the correct verbal response(s) in sequence.

3. Teacher-Student Discussion: Discussion of appropriate attitudes, emotions, people, times, places involved. No data taken on discussion.

4. Criterion: Follow the above procedure until S has three consecutive correct trials.

Part III - Verbal Explanation Without Visual Aids

Modeling, Testing and Instruction, Discussion and Criterion are the same as for Phase IV, Part II except all visual aids are removed.

Results and Discussion:

The baseline data indicated (Table 5) that the students were not able to state a verbal explanation of the reproductive process. (The students had to both state the correct key words/phrases and state them in correct sequence for the trial to be counted as correct). During baseline measures most students mentioned the idea of "baby in mother's stomach" and/or "go to hospital," but responses were not in an appropriate sequence.

Because of end of the school year time limits and rapid student progress (for S4, S6, S7, S8) through the Reproductive program, the instruc-

Table 5

Reproduction

	BASELINE	PHASE I			
Students	Phase IV, terminal objective of reproduction program	Baseline Phase I Objective	Part I Trials to Criterion	Part II Trials to Criterion	Part III Trials to Criterion
S3	0%	0%	5	7	9
S4	0%	0%	5	6	3
S6	0%	0%	4	9	5
S7	0%	0%	3	8	4
S8	0%	0%	4	5	6
S9	0%	0%	4	7	3

Table 5 (continued)

	REBASELINE	PHASE II			
Students	Phase IV, terminal objective of reproduction program	Baseline Phase II Objective	Part I Trials to Criterion	Part II Trials to Criterion	Part III Trials to Criterion
S3	0%	0%	4	5	
S4	0%	0%	6	4	3
S6	0%	0%	4	5	3
S7	0%	0%	4	5	3
S8	26%	41%	4	5	3
S9	0%	0%	6	8+	

Table 5 (continued)

	REBASELINE	PHASE III AND PHASE IV (COMBINED)		
Students	Phase IV, terminal objective of reproduction program (served as a baseline for Phases III and IV combined)	Part I Trials to Criterion	Part II Trials to Criterion	Part III (serves as post-test of reproduction) Trials to Criterion
S3				
S4	7%	3	4+	
S6	59%	3	4	3
S7	48%	4	6	3
S8	48%	3	3	3
S9				

tional sequence was revised; Phases III and IV were combined and taught concurrently.

By the end of the 1976 school year, three of the students, S6, S7 and S8, demonstrated mastery of the program terminal objective, that is, they could state a verbal explanation, without visual aids, of the reproductive process including intercourse, conception, pre-natal growth and birth. S4 was being instructed on the verbal explanation with visual aids in Phases III and IV, Part II at the end of the school year; S4 needed only to complete Parts II and III of the final phase of the Reproduction program. S3 had completed the verbal explanation with visual aids through Phase II, Part II and S9 was being instructed on the verbal explanation with visual aids in Phase II, Part II when the school year ended.

It is of interest that subsequent to teaching a verbal explanation of intercourse in Phase I, there was a dramatic improvement in S8's ability to state a verbal explanation of the reproductive process on the rebaseline of Phase IV, the program terminal objective. (See Table 5) Also subsequent to teaching a verbal explanation of intercourse and conception in Phase II, four students, S4, S6, S7, and S8, showed dramatic improvement in their abilities to state a verbal explanation of the reproductive process on the rebaseline of Phase IV, the program terminal objective. (See Table 5) Apparently, without direct training on the responses to the Phase IV cue(s), these four students were able to verbalize the response chain previously acquired when presented with the program terminal objective cue(s).

2. Self-Care Skills

a. Grooming, Domestic Maintenance and Cooking Skills

As a part of teaching sex education and social skills, grooming skills were included because they should be helpful for attractiveness and should facilitate social interactions. Other related self-care skills were included to facilitate living in less restrictive environments. The students had previously acquired some basic skills in grooming, dressing, domestic maintenance and cooking during Phase I of the Curriculum. Since the majority of parents (See Table 2) expected their son/daughter to ultimately live away from home, the parents and teacher agreed that more sophisticated self-care skills would be necessary for this semi-independent or independent future living.

Previously, all self-care skills instruction by the teacher was carried out in the "home living skills" room of the public school. At the onset of Phase II of the Curriculum, the teacher and students were given the opportunity to use a local semi-independent residential living setting for self-care skills practice. This residential setting or a very similar one was expected to be the future living setting for the majority of students. It was hoped that difficulties in transfer of skills would be minimized by training in the actual future environment and on the actual equipment (sinks, showers, stoves, etc.) students would be expected to perform on in the near future. Students spent two three-hour periods each school week in the residential setting.

To further determine skills to be programmed for and to prioritize those skills, the parents of each student involved were sent a copy of a list of grooming, dressing, domestic maintenance and cooking skills (See Appendix C) considered necessary by the teacher for semi-independent functioning. (See Hamre, 1974, for more detailed expansion and task analysis of some of these skills). Parents were asked to check "✓" each skill their son/daughter was not performing completely independently at home, to list at least three priority skills which they thought their son/daughter needed instruction on, and to write any additional general comments on self-care skills performed at home.

The majority of parents indicated that most of the grooming skills listed were being performed at least semi-independently at home. Many of these skills had been previously taught in the school and/or home during Phase I of the Curriculum. The parents, by written comments, indicated that the students' major need was refinement of these grooming skills, i.e., starting grooming without being reminded, grooming for specific reasons, grooming in an appropriate amount of time, performing the listed skills in a complete grooming routine. Parents also indicated interest in having their son/daughter acquire additional skills in grooming practices, usually initiated in adolescence to make oneself more attractive, for example, use of cologne or after shave. Most parents indicated that the dressing skills listed were being performed adequately in the home and did not need additional work. In the area of domestic maintenance skills, parents expressed the most interest in having students acquire laundry and sewing skills, and additional skills in vacuuming, sweeping, dusting, and doing dishes. Parents indicated that students needed instruction on all of the listed cooking skills.

Students were taught in small groups of 1-3 students usually of the same sex, due to differences in degree of independence in performing previously acquired self-care skills and, in the case of grooming, differences in sex and sex-specific skills needed (such as face shaving for males). The skills were taught through modeling.

The program was composed of two basic phases:

Phase I, Teaching Laundry and Cleaning Skills: This phase included laundry-related skills such as sorting clothes by color before washing, operating automatic wash machines, measuring laundry detergent, timing wash, operating automatic dryer, discriminating dry from wet clothes, folding flat clothes, hanging clothes on hangers and exposure to using a public laundromat. Also included in this phase were cleaning skills including dusting, vacuuming, and sweeping.

This phase was taught by another teacher in the semi-independent residential home and in local laundromats. Data on this phase is not reported here.

Phase II, Teaching Grooming Routines, Domestic Maintenance and Cooking Skills: A list of skills was compiled on a checklist data sheet (See Appendix D) before instruction. Grooming, domestic maintenance and cooking skills were taught concurrently to approximate a "normal" home routine, (e.g., shower, then wash hair, clean up bathroom, work on sewing, make balanced lunch, wash dishes, dust and vacuum).

Before beginning instruction on grooming routines which required undressing, such as a showering routine, permission to work with a teacher of the same sex in a bathroom setting was secured from the parents of each student. Grooming skills were combined into a routine for each student and students were instructed on grooming for specific reasons (such as getting ready for school or getting ready for a party) and in an appropriate amount of time; the teacher attempted to change the locus of control from others (teacher, parents) to self-control (student) on initiating and completing grooming routines, by gradually fading teacher prompts and decreasing the amount of time the teacher spent directly with the student. Additional "teenage" grooming skills often considered helpful for attractiveness were taught; these skills included uding moisturizing lotion and/or body powder, applying light make up, using cologne and applying fingernail polish for females and using after shave and/or cologne for males. This phase also included domestic maintenance and cooking skills (See list, Appendix D).

Since the students had previously acquired the basics for most of these self-care skills, the extended skills were readily acquired through modeling, verbal prompting and priming, when necessary. Throughout the three-hour self-care skills periods, the teacher would model tasks such as using deodorant, for example. That is, if a student was going to be required to use deodorant, appropriate use of deodorant was modeled; if a student was going to be required to wash dishes, appropriate dish washing was modeled.

b. Menstrual Training

Menstrual training is a self-care skill and could be considered part of grooming skills; because "Premenstrual Training" was previously reported in the Phase I Curriculum as a separate Self-Care Skills program, the extension will be reported separately here.

Two female students were involved in a premenstrual training program during Phase I of the Curriculum. With formal training in school and followup informal training in the home, the two students learned to identify menstrual blood, perform a hygienic routine and apply sanitary equipment. Whether or not the routine taught would generalize to the students' actual menstrual periods remained unknown but it was hoped that with formal and continuing informal premenstrual training very little teaching would be necessary when menstruation did begin. Both students continued to be informally provided menstrual hygiene and equipment training by their mothers in their own homes during the summer months and the following 1974-1975 school year. Formal instruction was delayed the following school year due to difficulty in finding a teacher willing to model and teach these menstrual skills. After conferring with medical personnel, it was decided to delay formal training with S3 (referred to as S2 in the Phase I Curriculum data) until she had further physically matured and the onset of menstruation was eminent.

During the 1975 school year, S7 (referred to as S1 in the Phase I Curriculum data) started her actual menstrual period; during the 1976 school year S3 started her period. Reports from the girls' mothers and teacher indicated that by the time of the second menstrual period, both girls were able to identify menstrual blood, complete a hygienic routine and apply sanitary equipment unassisted. Neither girl was observed to exhibit any "fearful" behavior at the sight of menstrual blood or concerning application and wearing of sanitary equipment. Cooperative informal training in school and at home taught both girls appropriate times and a method of changing a soiled napkin and to carry sanitary equipment in preparation for a menstrual period. At parental request (See Table 2), it is hoped that both students will be taught a calendar routine when their menstrual cycles have become regular and that S3 will be taught the use of a tampon as an alternative to a sanitary napkin.

3. Social Interactions and Social Manners

During Phase I of the Curriculum, students acquired cooperative and isolative play skills in the "Social Interactions" program and socially appropriate dressing, walking, sitting and general posturing in the "Social Manners" program. After the students had acquired these basic skills and were transferred to the regular middle school setting, the "Social Interactions" and "Social Manners" programs were combined.

Reports from the parents and teacher indicated that although the students were performing the acquired social skills across school and home settings and across people, additional skills were needed for more successful social functioning in the regular middle school setting and community. Specifically, students needed verbal interaction skills for making "small talk," skills in dealing with new inappropriate and appropriate verbal and physical interactions, and extended game skills.

The social skills were all taught through modeling and verbal prompting. The program was composed of four basic phases:

Phase I, Teaching Students Verbal Interaction Skills for Making "Small Talk" When Directed by the Teacher: This phase included teaching students how to ask simple "small talk" questions of the teacher and of peers when directed by the teacher and with a group; questions taught concerned what a student did the night before, what a student ate for lunch or dinner, or what a student watched on T.V., for example. The students were also taught to look at the person speaking and to give appropriate answers to "small talk" questions asked by the teacher and fellow peers. Prerequisite skills were previous spontaneous speaking in at least 3-5 word utterances, ability to imitate at least five word phrases and at least receptive comprehension of the past tense. All teaching was carried out by the classroom teacher and speech therapist. Instruction was carried out on an informal basis several times a day in opening, language, "rap time" and free time within the classroom.

Phase II, Teaching Students Verbal Interaction Skills for Making "Small Talk" Without the Teacher and in Varied Settings: This phase was the same as Phase I except the teacher gradually removed verbal directions and also removed herself from the setting as students began to carry on simple "small talk" in pairs and in small groups. The teacher's role was then to praise appropriate "small talk" behavior from a distance all during the day and to model or give verbal prompts when necessary. During this phase students were taken to different settings, such as the hall, the lunchroom, outside, and at the semi-independent residential setting (where self-care skills were being practiced) to carry on "small talk" in pairs and in small groups.

Phase III, Role-Playing Appropriate Responses to Inappropriate and Appropriate Verbal and Physical Interactions: This phase included instruction on appropriate social interactions and mannerisms outside of the classroom setting; it was taught concurrently with Phases I and II. Before onset of the school year in the regular middle school setting, the teacher made several visits to the middle school and met with middle school teachers to determine possible positive and negative interactions and situations the handicapped students might be confronted with. The teacher decided to concentrate on situations including a school peer making friendly "small talk" to a student, the student being lost, the student being called names and teased, the student being physically bumped into and/or pushed, and the student being "egged on" to act inappropriately.

All training was carried out through role-playing. The teacher and instructional aide modeled appropriate responses to inappropriate and appropriate interactions. The student was subsequently required to play the appropriate role with the teacher and/or a peer. The student was praised by the teacher and peers for appropriate responding in the role-playing situation or if the student responded incorrectly, the appropriate response was modeled until the student could imitate it. All role-playing was conducted in the potential settings where the interactions could be expected to occur; that is, if a student could potentially be called names in the school hallway, then appropriate response to name-calling was role-played in the hallway (when the hallway was empty). The students were verbally reminded of the appropriate responses they had practiced in role-playing situations before they entered the actual situation (in which the interactions could be expected to occur). The teacher and/or instructional aide observed, from a distance, the students in the actual situations during the day. Whenever students exhibited appropriate responses, in the actual situations, they were praised by the teacher within a short interval of time. Classroom peers were also encouraged to praise each other for appropriate responding in the actual situations. If students responded inappropriately in an actual situation, the appropriate response was modeled by the teacher and practiced by the student within a short time interval of the incident.

After students consistently exhibited these appropriate social interactions and manners in the school setting, similar interactions were practiced in actual and/or simulated community settings including the city bus, the semi-independent residential setting, stores, public libraries and school dances. It is hoped that other problem situations, including appropriate responses to inappropriate sexual advances, can be practiced, possibly through the use of videotaped actors simulating the situations.

Phase IV, Teaching Additional Cooperative and Isolative Game Skills: This phase included extending the game skills students acquired in Phase I of the Curriculum to new games requiring similar basic skills; this phase was carried out concurrently with Phases I, II, III. Games were selected from a list of games considered appropriate for cooperative and isolative play as found in Williams, Hamre-Nietupski, Pumpian, McDaniel and Wheeler (1975).

Due to differences in student's cooperative and isolative games preferences, separate informal programs were designed for individual and/or small groups of students; different games were selected by or for different students. All new game skills in Phase II of the Curriculum were readily acquired through modeling as in Phase I of the Curriculum. For a more detailed description of the social skills program see Williams, Hamre-Nietupski, Pumpian, McDaniel and Wheeler (1975).

III. RESULTS TO DATE

As indicated previously, the curriculum has been developed and implemented over a period of three years. At various times different teachers and students have been involved throughout the project. Table 6 depicts the number of severely handicapped students who have mastered each component program of the curriculum.

Table 6

Results to Date -

Number of Severely Handicapped Students

Who Have Mastered Components of Curriculum

	Bodily Distinctions	Self-Care	Family Members & Relationships	Social Interactions	Social Manners	Growth Distinctions and Reproduction
Number of Students Involved	20	8	20	20	8	6
Number of Students Who Mastered	20	7	20	19	7	3

It must be noted that generalization probes were administered after student had mastered a skill. Students generalized the skills to other settings and materials.

IV. GENERAL DISCUSSION

An empirically based Sex Education and Social Skills Curriculum, designed to meet the immediate needs of severely handicapped students, was successfully implemented. The results indicated that students learned rudimentary sex education and social skills including discriminating and labeling body parts, including genitals, performing self-care tasks, labeling family members and relationships, engaging in social interactions and using appropriate social manners. These skills formed the basis for more complex skills including sex distinctions with and without clothing, body changes related to growth, use of sanitary equipment and growth distinctions and reproduction.

The data indicated some generalization of the skills taught to untaught conditions. For instance, four (of the five tested) students' abilities to label body parts on unclothed representational figures in the classroom generalized to real people in a shower room. Four (of the five tested) students' abilities to label and make sex distinctions on unclothed representational figures in the classroom generalized to real people. Three (of the four tested) students' abilities to label body changes related to growth on unclothed representational figures in the classroom also generalized to real people. In addition, there was generalization from specific to general family relationships.

The data alone cannot capture all of the dramatic behavior changes that occurred over the course of the three years. It is interesting to note that recently one female student, whose baseline data had indicated a severe deficiency in expressive vocabulary, asked the teacher to accompany her to a stall in the girls' bathroom at recess. After entering the stall the girl showed the teacher her (the student's) first pubic hair and said, "See? Pubic hair, to grow. I am a woman."

In another recent class session dealing with reproduction, a student whose initial baseline scores indicated very little verbal expression of the reproductive process raised her hand to say, "I make a point. I was a baby, right? Not anymore, right? My dad's erection into mom's vagina. Mom has many eggs inside. Dad's sperm (looks like tadpoles but not tadpoles) into mom's uterus to fertilize egg. Fertilized egg to grow into baby. I am inside my mother's uterus kicking and kicking and grow 9 months. I come out of mom's vagina between the legs. That's it!"

Parental and administrative cooperation were crucial to implementation of the curriculum. Parental participation was essential for facilitating generalization of many of the skills taught to the home setting. With this continued cooperation, the Sex Education and Social Skills Curriculum can be further designed and implemented, to include additional important aspects, such as birth control and venereal disease information. It is most likely, based on information gathered from parents, teachers and the community, that these students will soon live in coeducational semi-independent living settings. The students have been trained in those settings and many skills have transferred to those settings. The sex education and social skills acquired should facilitate appropriate adult functioning in less restrictive community environments.

V. REFERENCES

A. Overview

Three ongoing lists of references for use in conjunction with the Sex Education Curriculum have been compiled. All the references pertain to issues related to sex education and/or social skills for severely handicapped. The first list is for professionals. This list covers a broad range of material related to topics of potential interest to professionals developing a sex education curriculum for severely handicapped students. The list has been broken into sections entitled: Issues in Sex Education Training; Programming Aspects (General Proposed Instructional Methods); Physical and Biological Aspects; Self-Care Skills; Legal Aspects; Working with Parents; Marriage and Parenthood; Contraception, Sterilization, Abortion and Family Planning; and General Information. The second list is for parents of severely handicapped youth and contains references on: Teaching Self-Help Skills; Issues in Sex Education and General Information Related to Sex Education; and Contraception, Sterilization and Abortion. The third list is for severely handicapped youth. The books chosen are for youth to look at and read themselves or for parents and teachers to read to them. The youth book list contains books on: Your Body and How It Grows; Human Families; Friends, Taking Care of Yourself; Good Manners; Feelings; Animals and How They Are Born; and How Babies Are Made and Born. These references are available in the local public libraries, university libraries and local bookstores.

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VI. APPENDICES

Appendix A

Parental Interactions

Sex Education and Social Skills, Phase II

Potential outline of topics to be covered by the curriculum: Final designation of topics will be determined by the parents of the students involved.

A. Values, attitudes designated by parents to be associated with sexual behaviors.

B. Dating and marriage, as determined necessary by parents.

C. Appropriate time and place to engage in sexual behaviors.

1. Holding hands
2. Hugging
3. Kissing
4. Touching
5. Intercourse
6. Masturbation

D. Teach the student the human reproductive process

Vocabulary

1. Erection
2. Penis
3. Vagina
4. Sperm
5. Uterus
6. Egg
7. Fertilize
8. Growth
9. Birth

Materials

1. Books, listed on bibliographies sent to parents.
2. Transparencies
3. Life-size representational figures

E. Birth control method(s) as determined necessary by parents.

F. Venereal disease information and check-ups as determined necessary by parents.

Parent Conference Report, Phase II

1. Person(s) Attending Conference ____________________________________

2. Date of Conference ____

3. What kind of future living environment do you now foresee for your child? Any changes since our previous family-life conference?

4. Discuss the possibility of dating for your child.

5. Discuss the possibility of marriage or a similar arrangement for your child.

6. The possibility that your child will encounter or engage in some of the following sexual behaviors exists:

   holding hands
   hugging
   kissing
   touching
   intercourse
   masturbation

   Discuss appropriate times, places, and individuals for such relations.

7. What "values," "attitudes," "emotions" do you feel your child should have in regards to the above relations?

8. How can we (home and school) plan for the possibility that your child will have sexual relations?

9. What do you think your child should know about human reproduction?

10. If it is appropriate, what method of birth control would you prefer for your child?

Female	Males
birth control pills	condom
intrauterine device	vasectomy
diaphragm	
"injectables"	
spermicides (foams, gels)	
tubal ligation	
laparoscopy	
hysterectomy	

11. What do you think your child should know about venereal disease?

12. Discuss the need for ongoing supervision of your child's sexual behavior, use of birth control (if and when appropriate) and periodic physical examinations (including tests to detect venereal diseases).

13. Discuss needs (if any, in this area) presently existing in the school environment.

14. How are present needs being handled in school? Also, discuss possible methods of handling these needs in the future.

15. What needs (if any, in this area) are presently existing in the home environment?

16. How are present needs being handled in the home? Also discuss possible methods of handling these needs in the future.

17. What additional information do you think your child should acquire?

Appendix B

Growth Distinctions; Babies - Children - Grownups -- Distinctive Feature List

Babies (0-1 year)	Children (1-12)	Grownups (13-75)
size (very small)	size (bigger than baby)	size (relatively bigger)
hair (very little)	hair (more than baby)	hair (extra body hair visible such as moustache, beard, arm hair, leg hair)
teeth (none or few)	teeth (many to full set)	teeth (usually full set)
activities engaged	activities engaged in	activities engaged in
in style of dress	style of dress	style of dress

Pictures Used to Represent Growth (Age) Groups

Babies (0-1 year)	Children (1-12)	Grownups (13-75)
Six pictures of very small babies (with clothing, sex was not apparent)	1 boy, 1 girl, ages 1-5	1 man, 1 woman, ages 13-30
	1 boy, 1 girl, ages 6-9	1 man, 1 woman, ages 30-50
	1 boy, 1 girl, ages 9-12	1 man, 1 woman, ages 50-75

Appendix C

List of Self-Care Skills for Semi-Independent/Independent Functioning

Basic Grooming Skills

1. Brushing hair
2. Parting hair
3. Washing hairbrush
4. Washing hair
5. Setting hair
6. Styling hair
7. Brushing teeth
8. Using mouth wash
9. Washing face (and neck area)
10. Treating acne
11. Washing hands
12. Using hand cream and body lotion
13. Cleaning under fingernails
14. Clipping fingernails
15. Filing fingernails
16. Cleaning ears
17. Washing underarm areas
18. Using deodorants
19. Washing feet
20. Cleaning toenails
21. Clipping toenails
22. Washing all critical skin areas with washcloth at sink
23. Taking a bath
24. Taking a shower
25. Shaving face (males)
26. Shaving underarms (females)
27. Shaving legs (females)
28. Menstrual hygiene
    a. Using sanitary equipment
    b. Cleansing genetalia
29. Sitting appropriately
30. Standing appropriately
31. Walking appropriately

Basic Dressing Skills

1. Zipping zippers (on the front and on the back of clothes)
2. Snapping snaps (on the front and on the back of clothes)
3. Buttoning buttons (on the front and on the back of clothes)
4. Hooking hooks and eyes (on the front and on the back of clothes)
5. Tieing ties (on the front and on the back of clothes)
6. Buckling buckles

7. Putting on a garment which opens down the front
8. Putting on garments over the head
9. Putting on pants
10. Putting on socks
11. Putting on shoes
12. Tieing shoes
13. Lacing a lace (shoe, lace-front shirt)
14. Straightening own clothes after they are on and/or messed up
15. Matching colors
16. Matching figures (stripes, plaids)
17. Matching types of clothes together
18. Fitting clothes-too large, too small
19. Dressing appropriately for specific environment (church, work, play)
20. Dressing appropriately for different weather conditions

Basic Domestic Maintenance Skills

1. Cleaning (polishing) shoes
2. Washing clothes by hand
3. Sorting clothes by color before washing
4. Washing clothes by a washing machine
5. Hanging clothes in a dryer
6. Drying clothes in a dryer
7. Using public laundromat
    a. Washer
    b. Dryer
8. Folding flat clothes
9. Hanging clothes on hangers (blouses, shirts, pants)
10. Ironing flat clothes
11. Ironing non-flat clothes
12. Sewing on buttons
13. Mending a tear in a seam or in material
14. Darning a sock
15. Dusting flat and non-flat surfaces
16. Vacuuming a rug
17. Sweeping a floor, using dust pan
18. Wet-mopping a floor
19. Making a bed
    a. Changing bed linens
20. Doing dishes
    a. Clearing table
    b. Scraping dishes
    c. Washing, rinsing dishes
    d. Drying dishes
    e. Putting dishes away
21. Setting a table
22. Using table tools (spoon, fork, knife, cup)

Basic Cooking Skills

1. Using a can opener (hand)
2. Using a bottle opener

3. Setting stove burners to proper temperature
4. Setting a timer on an oven
5. Setting oven temperature
6. Preparing simple breakfasts
    a. Toast with butter
    b. Cold cereal with milk
    c. Toaster waffle with butter and syrup
    d. Toaster french toast with butter and syrup
    e. Frozen orange juice
    f. Fried egg
    g. Fried bacon
7. Preparing simple lunches
    a. Sandwich with lunch meat
    b. Sandwich with cheese
    c. Sandwich with filling (egg salad, tuna salad)
    d. Fruit
        1) Canned
        2) Fresh
    e. Milk
    f. Canned soup (spaghetti, ravioli, etc.)
    g. Packing a balanced lunch in a bag
    h. Filling a thermos bottle
8. Preparing simple dinners
    a. TV dinner
    b. Canned dinners (beef stew, chili, chop suey, beans 'n franks, etc.)
    c. Canned vegetable
    d. Lettuce salad
    e. Instant mix dessert (pudding, jello)
9. Reading simple instructions on packages and cans
    a. Temperature
    b. Added ingredients
    c. How long to cook
10. Using measuring utensils (cups, spoons)
11. Choosing appropriate foods
    a. Fattening foods
    b. Non-fattening foods

Appendix D

Self-Care Skills Checklist Data Sheet

Did the student perform these skills appropriately:

+ = correct   - = incorrect   M = with model   P = with prime   VP = verbal prompt

GROOMING SKILLS	Student	Student	Student	Student	Student	Student
Sponge bath/or shower						
Regulates water temperature						
Uses soap						
Washes all critical areas (face, neck, underarms)						
Rinses all soap off						
Dries all wet areas						
Lathers hair twice						
Rinses all soap out						
Uses creme rinse (if appropriate)						
Uses deodorant						
Shaves face appropriately						
Shaves underarms appropriately						
Shaves legs appropriately						
Brushes teeth appropriately						
Uses mouthwash						
Uses moisturizing lotion and/or body powder						

Self-Care Skills Checklist Data Sheet (continued)

+ = correct   - = incorrect   M = with model   P = with prime   VP = verbal prompt

GROOMING SKILLS (cont.)	Student	Student	Student	Student	Student	Student
Uses light makeup						
Uses aftershave or cologne						
Cleans up bathroom area						
Clips fingernails						
Files fingernails						
Removes nail polish						
Applies nail polish						
Clips toenails						
SEWING SKILLS						
Threads needle						
Knots thread						
Sews button on						
Knots thread to secure button						

Self-Care Skills Checklist Data Sheet (continued)

Cooking Skills

Did the student perform these skills appropriately:

+ = correct
M = with model
- = incorrect
O = out of sequence
P = with prime
VP = verbal prompt

IDENTIFYING FOODS	Student	Student	Student	Student	Student	Student
Names all four food groups						
Labels all foods given						
Puts all foods given into correct group						
Identifies foods to be heated						
HEATING FOOD SKILLS						
Opens can completely (throw lid away)						
Gets out saucepan						
Empties food into pan						
Gets out big spoon and scrape pan						
Puts spoon in pan and spreads food out						
Sets pan on burner						
Gets out hot pad (and holds pan handles with)						
Turns correct burner on						

Self-Care Skills Checklist Data Sheet (continued)

+ = correct
M = with model

- = incorrect
0 = out of sequence

P = with prime
VP = verbal prompt

HEATING FOOD SKILLS (cont.)	Student	Student	Student	Student	Student	Student
Turns to medium temperature (4-6)						
Stirs food while heating						
If stops stirring, puts spoon in can						
When food bubbles, turns burner off						
Gets out another hot pad and sets on counter						
Sets pan on hot pad						
Tests food with spoon (to see if hot)						
If not cooking, watches S cooking						
MAKING BALANCED MEAL						
Makes lunch on own						
Meal has foods from all groups (no excess)						
Tries all foods chosen to eat						
CLEAN-UP SKILLS						
Washes dishes (use hot water and soap, rinse)						
Dries dishes (and all utensils put away in correct place)						
Wipes off surfaces (tables, stove, counters)						

A Job Skill Inventory Strategy for Use in a Public School Vocational Training Program for Severely Handicapped Potential Workers[1]

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Most people have unfortunately low productive expectations regarding the ultimate vocational functioning capabilities of severely handicapped workers. These generally low levels of productive expectation are particularly noticeable when compounded with many other social, economic and emotional factors particularly when severely handicapped citizens compete for jobs that are generally reserved for non-handicapped workers.

Historically, there have been many reasons offered to explain why severely handicapped citizens have not been considered viable members of the competitive labor pool. The first reason offered is that jobs are limited for nonhandicapped workers and as they require fewer accommodations, they should be given priority. Second, in many situations the general vocational performance of mildly handicapped workers has not been marked by overwhelming success. Thus, it is argued that if mildly handicapped workers have failed in a particular vocational setting, severely handicapped workers cannot be expected to succeed. Third, severely handicapped students have rarely manifested the general developmental repertoires necessary to function effectively in all but the most banal and sheltered vocational environments. Fourth, it has been assumed that non-

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handicapped workers, for a variety of reasons, would resist or resent working on the same job with severely handicapped workers.

Those persons primarily responsible for the longitudinal development of adult functioning skills of severely handicapped students are aware that all persons are equal. They are also aware, however, that on selected dimensions, some persons are "more equal" than others. Only after a long hard struggle will our society be arranged so that handicapped and nonhandicapped citizens have equal employment opportunities. In addition, those directly responsible for the development of severely handicapped citizens are aware that in the past most of the effort, glamour and resources of the human services movement have been focused upon securing competitive employment and semi-sheltered private and civil service employment for mildly handicapped citizens. These factors have often discouraged direct training personnel from creative attempts at program improvement.

On the other hand, persons attempting to generate longitudinal developmental services for severely handicapped citizens cannot wait for a more favorable "employment climate" before they design educational services that contribute to the development of marketable vocational skills. Indeed, they would be remiss if they did wait because in the near future severely handicapped citizens will function in heterogeneous public communities all over the nation for all of their adult lives. Stated another way, persons working with severely handicapped students are responsible for developing the maximum number of vocational skills and employment opportunities, however remote competitive employment appears at any given point in developmental space for any given student. If educators can provide severely handicapped students with marketable work skills who in turn can demonstrate "on the job" success, it follows that more and more people will eventually develop higher and higher levels of productive expectation.

Reasons for Using the Job Inventory Strategy

There are literally thousands of adult functioning skills, attitudes, and values that contribute to the sustained vocational success of any worker. The primary focus here, however, will be on the delineation of selected factors in the work environment that seem basic and vital to the vocational success of severely handicapped workers. Some of the primary reasons for focusing upon such factors are presented below.

First, it is assumed that before public school personnel can teach vocational skills and severely handicapped students can be hired as workers, it is essential that methods of analyzing jobs potentially available to severely handicapped workers be developed. There are many job analysis techniques available that have varying degrees of applicability to the training and employment of severely handicapped students. However, to our knowledge, a vocational assessment instrument that has been generally validated for use with severely handicapped students is currently unavailable. As a generally validated vocational assessment instrument is currently unavailable, and as educators must now assume the responsibility for the development of the adult functional skills of severely handicapped students, it is imperative that educators design relevant strategies for delineating the vocational and related skills severely handicapped students must acquire.

Second, by focusing upon the delineation of selected factors in the work environment that seem basic and vital to the vocational performance of severely handicapped students, the process necessary to develop functional secondary level vocational preparation models and curricula for use in public schools will be initiated. One strategy that seems tenable when one relates to the process of developing functional vocational preparation public school models and curricula would be to conduct relatively precise skill analyses of specific community jobs for which severely handicapped students might be trained.

When job analyses have been conducted, teachers will have access to a reasonably comprehensive listing of many of the subskills required for successful performance on a variety of specific jobs. In effect, a job skill inventory strategy might serve a naturalizing function in a curriculum building model which attempts to delineate subskills and other related job requirements from the observation of workers performing actual jobs. Subsequently, the information secured from the job analyses can be compared to existing educational curricula in an attempt to determine the discrepancies between the general skills repertoires required to perform successfully on actual jobs and the skills generated from existing curricula. Educational curricula can then be modified and attempts can be made to teach severely handicapped students the appropriate skills.

Obviously, this strategy for assessing the differences between workers and jobs is not novel. However, it is our suspicion that severely handicapped students present problems of degree as well as kind, and that the degree of precision and comprehensiveness required when one is conducting a job analysis for severely handicapped students is greater than the degree of precision and comprehensiveness required for the analysis of jobs for less handicapped or nonhandicapped students.

Third, the skill inventory strategy may surface precise job criteria which can be made available to workers, parents, teachers and employers. Thus, from a precise evaluation of a particular job, employers can determine the specific skills needed. Teachers and parents can determine the specific skills in the student's current repertoire, and the skills that must be taught.

The potential workers and their parents can be given precise information regarding realistic probabilities of employment on a particular job.

Fourth, a cluster of precise inventories might provide vital information to teachers of young severely handicapped students in that those inventories may delineate many of the concrete skills and attitudes necessary for later successful performance on a variety of potential jobs. Undoubtedly many concrete skills will reoccur in many inventories and those core or critical skills and attitudes could be incorporated into the educational curricula of young students.

Fifth, precise skill inventories will help delineate the specific criteria necessary for successful job performance. With this vital information, teachers can design and implement instructional programs that systematically build the vocational skill repertoires to acceptable community criteria. Without actual job performance criteria teachers can only infer the performance criteria a worker will need when actually placed on a job.

Basic Assumptions of the Job Skill Inventory Strategy

There are at least three basic assumptions that relate to the use of job skill inventory strategies for severely handicapped students. First, it is assumed that successful and durable performance on a job is just as much a function of transportation, social, emotional and health maintenance skills as it is a function of the ability to perform specific job tasks. Therefore, those responsible for the vocational preparation of severely handicapped students need to design training strategies to insure that severely handicapped students acquire the constellation of social-vocational-domestic-leisure skills necessary to function as independently as possible in adulthood.

Second, the degree of inference a teacher can allow regarding the performance of severely handicapped students is less than the degree of inference a teacher can make regarding the performance of mildly handicapped students. That is, it must be empirically demonstrated that severely handicapped students have the repertoires necessary for durable functioning in natural vocational settings. If severely handicapped students are taught to perform successfully on simulated or even actual tasks in public school buildings, teachers cannot make the inference that those students will perform the same task in natural work settings. If severely handicapped students perform acceptably for 45 minutes or for three hours per day, it cannot be inferred that they will perform acceptably for 40 hours per week indefinitely.

Third, if the severely handicapped students progressing through our school systems now are to be better prepared than their predecessors, massive changes over long periods of time in traditional public school practices will be necessary. Stated another way public schools must systematically develop service models that provide for the career education needs of severely handicapped persons.

Finally, since all skills required of a particular job cannot be included in any inventory and since some job skills do not lend themselves readily to empirical delineation and verification, this inventory can only relate to selected skill clusters. Hopefully, the inventory can be used as a vehicle that can assist in delineating the skill areas minimally essential for satisfactory work performance on a particular job. The inventory strategy will, however, evolve substantially as more experience in the area of the longitudinal vocational development of severely handicapped students accrues. At this point, the utilization of the job skill inventory strategy appears to be a reasonable place to start.

An Outline of the Madison Job Skill Inventory

- I. General Information
  - A. Reasons why severely handicapped students are considered for this job
  - B. A general description of the job
  - C. A general description of the work setting
  - D. A general description of the social environment
    - 1. Information related to fellow workers
    - 2. Information related to supervision
    - 3. Information related to special contingencies of the employer
- II. Specific Skill Requirements of the Job Under Analysis
  - A. A listing of the basic physical/sensory motor skills required
  - B. A listing of the basic interpersonal skills required
  - C. A listing of the basic language skills (verbal and non-verbal) required
  - D. A listing of the basic functional academic skills required
  - E. A listing of the basic machine and tool skills required
  - F. A listing of the basic hygienic skills required
- III. Supportive Skills and Other Information Required
  - A. Transportation skills required
  - B. Skills related to work preparation
  - C. Basic money management skills required
  - D. Time telling and time judgment skills required
  - E. Health code requirements
  - F. Informed consent and legal requirements

Expansion of the job skill inventory strategy outline

In this section attempts will be made to elucidate and expand upon the components of the inventory strategy outlined above.

I. General Information

A. Reasons why severely handicapped students are considered for this job - Specific reasons why the resources of the educational community should be focused toward training severely handicapped students to function in a particular job should be presented. The major purpose of such a delineation is to generate reasonable probabilities that a return for the educational investment is tenable. Thus, it is suggested that at least the following questions should be answered.

Obviously, if the answers to any of the questions are negative, it is incumbent upon the educational community to provide the training and other accommodations necessary to generate affirmative answers.

1. Has a severely handicapped person ever functioned effectively on this particular job or a closely related job?
2. Has the job been performed successfully by mildly handicapped workers?
3. Does a task analysis of the job suggest that the components can be taught to an available severely handicapped student?
4. Contingent upon successful work study performance, will a severely handicapped student be hired by the employer?
5. Is the job site accessible (transportation) to a severely handicapped worker?

B. A general description of the job - The general description of the job should precisely state the components of the job tasks under analysis. The purpose of the description is to provide an overview or perspective of the job which presents the specific job task, work hours, and performance criteria. Hopefully, the general description will provide a teacher with an initial appraisal of the rudimentary requirements of a particular job. A minimal listing of what might be included in the general description is as follows.

1. A succinct task analysis of the job should be included. The analysis should depict at least the 10-20 basic steps necessary for successful job performance. The task analysis should also include the following items:
    a. A description of skills that are not part of the sequence described in the task analysis should be presented. For example, there may be special cleaning duties to be performed during slack periods.
    b. A precise description of basic performance criteria should be presented. This description should include information pertaining at least to rate, accuracy, error tolerance, duration, latency, and intensity as they are relevant.
2. A description of required work hours per day and per week, days off, overtime, scheduled breaks, etc. should be presented.
3. A description of products produced should be presented.

C. A general description of the work setting - A general description of the work setting contains vital information necessary for determining the physical conditions under which a worker will be required to function. Without this information teachers might train potential workers in simulated settings that do not accurately represent the settings in which the workers will ultimately perform. It is suggested that at least the following information be gathered by or for the teacher.

1. The description of the work settings should provide a general

description of relevant aspects of the entire physical plant and a more detailed description of specific work areas pertaining to the job.

2. When appropriate, the description of the work setting should include a diagram of crucial work areas.

3. The description of the work setting might also include a summary of environmental changes required. For example, instances when a worker must move from one room to another or go from within a building to the outside should be presented.

D. A general description of the social environment - The description of the social environment should highlight the nature and extent of social interactions required of the severely handicapped worker. Obviously this component can delineate only a sample of possible social experiences. In an effort to organize the social environment component, three subcomponents will be considered: 1) information related to fellow workers; 2) information related to supervision; and 3) information related to the special contingencies of the employer. A further description of each subsection is presented below.

1. Information related to fellow workers. A detailed description of visible characteristics of fellow workers should be secured. Specifically, the age, sex, daily attire, hair length, duration of employment, and if provided, direct statements made by fellow workers concerning the employment of severely handicapped workers should be secured.

2. Information related to supervision. The type(s) and amount of supervision typically provided to workers of the job being assessed should be described in the form of at least the following:

a. the number of visits a supervisor makes to the work station during specified time intervals;

b. the number of direct commands issued by a supervisor during given time intervals;

c. a listing of the actual direct commands issued;

d. the number of supervisors who will relate to the worker in question.

3. Information related to special contingencies of the employer. Special directives or rules made by an employer that are applicable to all employees should be listed. Specific stipulations might include the following:

a. the employer might prohibit gum chewing or smoking;

b. the employer might stipulate certain hair lengths or the use of hair nets;

c. the employer probably has set procedures concerning absences, breaks, holidays, compensatory leave, and covering for the absence of fellow workers;

d. the employer may set aside certain areas for breaks, vending machines, smoking.

II. Specific work skills required

Each work skill should be delineated and described in detail. From information secured in this component of the inventory teachers and employers often make the most critical judgments as to readiness for work. Information secured in relation to this component is also vital for planning and implementing instructional programs that will teach specific work skills not currently found in the repertoire of an individual student. The specific skill requirements component is divided into six subcomponents. Each subcomponent is described below.

A. Basic physical/sensory-motor skills required - The important motoric skills required of the worker should be delineated. There are hundreds of motoric activities required by even the most rudimentary job. However, it is essential that the job assessor and the employer select crucial physical motor skills. A specific physical-motor skill investigation should relate to at least the following:

1. The quantity of weights lifted and the distance the weights must be carried by the worker should be determined. A precise description of items carried should be included also.
2. A description of any unusual visual or auditory demands placed upon the worker should be provided.
3. A description of the amount of time the worker is required to stand and/or sit while performing work-related duties should be determined.
4. A behavioral description of each physical demand deemed crucial should be presented. For example, if emptying the trash is required then the description of this activity should denote:
    a. characteristics of trash cans and dumpsters;
    b. weights and distances involved in trash removal;
    c. assistance provided or not provided for trash removal.

B. A listing of the basic interpersonal skills required - The basic interpersonal skills component is closely related to the social environment component described earlier. Hopefully, however, this component will provide more detailed listings of the specific cues and responses involved in the job under investigation. Specific basic interpersonal skills should include at least the following:

1. There should be a listing of the specific actions required after

direct statements or commands are made by a supervisor.

2. The job assessor should describe the number and type(s) of social interactions conducted among fellow workers. Specifically, the assessor should determine:
    a. which interactions are crucial to the job performance;
    b. which interactions facilitate social success but are not crucial to job performance.
3. A description of lunch break and restroom break activities should be available. Specifically, the assessor should record:
    a. whether or not the worker regulates the lunch break;
    b. a description of the employee eating areas and restrooms.
4. The procedures a worker must use to find additional work when tasks are completed should be determined.
5. Attempts should be made to determine the frequency and types of unexpected social interactions that occur at given time intervals. Specifically, there should be a description of:
    a. the number and types of occasions when a worker is expected to greet new acquaintances;
    b. the number and types of occasions when a worker interacts with the public.

C. Language skills required - The language requirements of a job are as crucial to successful performance as motoric skills. Language skills will facilitate direction following, social interaction, as well as confidence in handling normal daily work requirements and unexpected situations. Within a job skills inventory the following language requirement should be delineated:

1. The assessor should determine the required direction following skills. Specifically, it should be noted whether 1, 2, or 3

component directions are given by supervisors and/or fellow workers.

2. The assessor should delineate those nouns, adjectives, prepositions, and verbs specific to the job under investigation.
3. The assessor should determine required expressive verbal and nonverbal language skills.

D. Functional academic skills required - Frequently, vocational and academic skills are not taught in situations where these crucial skill areas are functional. Specific academic skills, however, can be pinpointed as essential to particular jobs for severely handicapped students. Thus, the functional academic section of an inventory could include the following:

1. The assessor should delineate the required reading, math, and writing skills as well as any necessary telephone-use skills.
2. The assessor should describe essential categorization and discrimination skills.
3. The assessor should note any critical short term memory requirements.

E. Machine and tool skills required - In addition to specifying physical motor demands, the assessor should describe the range of machine and tool requirements. In this component descriptions of even the most rudimentary tools, such as a broom as well as the more obvious machinery such as a dishwasher should be included.

F. Hygiene skills required - In this component specific body care requirements should be described. These requirements might include body and clothes cleanliness, deodorant use, the use of hair nets, and shaving demands.

III. Supportive skills and other information required

There are probably several skill areas that do not pertain directly to the job under investigation but that are crucial to successful job performance. The following four skill areas could fit into this category: 1) transportation skills; 2) work preparation skills; 3) basic money management skills; and 4) time telling and time judgment skills. In addition to these ancillary skill areas, there are at least two other information clusters that must be considered by a teacher before a severely handicapped worker is placed in a competitive job: health code requirements and informed consent and legal requirements. A brief description of these supportive skills and information clusters is provided below.

A. Transportation skills required - Without an independent method of getting to and from work, a severely handicapped worker probably will not be successful vocationally over an extended time period. Even if the worker is provided transportation by his parents or by his residential supervisors, job security would be a direct function of transportation resources. There are at least four methods or combination methods of independent travel that do not rely on "helpful others" and are available to severely handicapped workers: public buses, public taxis, bicycles, and walking. Thus the transportation skills component of the inventory should detail the skills required by these travel methods.

1. A description of the distances to and from work and to and from locations the worker will be traveling should be presented.
2. Precise descriptions of the transportation modes the worker will be using on a regular basis should be presented.
3. Alternative methods of transportation open to the worker in the event that the primary source is unavailable on a given day should be presented.

B. Skills related to work preparation - Many severely handicapped students do not make advance plans concerning the clothes they will wear and, in many cases, what and where they will eat in a given day. One of the primary reasons for these inabilities is that most severely handicapped persons are taught to leave day to day planning decisions to "helpful others." However, if severely handicapped students are to function successfully in vocational settings, they must be taught skills related to independent work preparation. For too long severely handicapped students have arrived at sheltered workshops oddly dressed and either without sack lunches or money to purchase lunch. While such skill deficits may be tolerated by persons instructing severely handicapped students, such tolerance may not be available in more competitive job settings. Thus, it is suggested that at least the following work preparation skills be developed:

1. At least the following specific clothing requirements of the job under investigation should be determined:
    a. Clothing requirements specific to the job itself should be described. If uniforms are required, the person responsible for providing and maintaining uniforms should be determined.
    b. The clothing requirements acceptable for getting to and from work should be determined.
    c. Clothing preparation skills should be delineated. That is, laundry skills and color combination skills should be determined.
2. The work preparation component should describe daily lunch and break requirements. Minimally the following questions should be answered:
    a. The amount of time the severely handicapped worker will be allotted to eat and specifically where lunch will be eaten

should be described.

b. The lunch options available to the worker should be presented. That is, the skills necessary to use brown bags, vending machines or lunch counters should be delineated.

c. Who will prepare a sack lunch and what alternative preparation plans are available should be described.

d. Whether or not bagged lunches will require refrigeration should be determined.

C. Basic money management skills required - Often severely handicapped persons have much of their financial business "taken care of" or handled by "helpful others." However, since the emergence of sheltered workshops, the notion of renumerative income for productive severely handicapped workers has surfaced and most supervisors recognize the right of the severely handicapped employee to manage certain portions of his/her income. It should be stressed, however, that money management skills for competitive severely handicapped workers will need to be more comprehensive than those needed by many sheltered workshop employees. In competitive job settings unscrupulous individuals could exploit severely handicapped workers. In addition, severely handicapped workers probably will not find the daily financial assistance previously available from "helpful others." Thus, it is crucial that basic money management skills be developed. Minimally the following skill clusters should be addressed:

1. The severely handicapped worker, the teacher, and parents should determine jointly the ways in which the worker will spend his new income.
2. The amounts of money the severely handicapped worker will need on a daily basis and for what purposes should be determined.

3. The method through which the severely handicapped worker will be paid should be determined.
4. How the severely handicapped worker will cash the check, and the type of assistance the worker's bank provides to handicapped patrons should be determined.

D. Time telling and time judgment skills required - Time telling skills have been taught in classrooms for severely handicapped students. However, time judgment skills or the abilities necessary to pair environmental occurrences with specific daily time periods is a cluster of skills often not addressed in classrooms, but is often critical to successful job performance. Therefore, the following issues should be addressed to determine precisely the time skills needed for the job under investigation:

1. The degree to which the severely handicapped worker will need to tell time should be determined. Will the worker need to determine time to minute; 5 minute; or 30 minute intervals?
2. The critical events directly related to the job and the time of those events should be determined.
3. The non-job events, such as lunch, the severely handicapped worker will need to pair or match with specific daily time periods should be determined.
4. The time a worker will need to leave home in order to arrive at work on time should be determined.
5. Alternative time telling strategies available to a severely handicapped worker who does not have skills suggested in 1-4 above should be determined.

E. Health code requirements - The final two components of the job inventory, Health code requirements and Informed consent and legal requirements, are information sections that do not directly involve specific skills of severely handicapped workers. However, descriptions of requirements for these two components must be gathered to insure that state and local laws and ordinances are honored. Within the domain of health code requirements the following questions should be addressed:

1. The types of specific physical exams required of workers for the job under consideration should be determined.
2. Required vaccinations should be determined.
3. If the severely handicapped worker is being considered for food service work, the requirements concerning restroom use and handwashing should be determined.

F. Informed consent and legal requirements - The worker's teacher or advocate should investigate the following questions:

1. Will the severely handicapped worker need a work permit? If so, what steps will be necessary to procure one?
2. Does the severely handicapped worker possess a Social Security card? Will the worker's income jeopardize social security benefits the severely handicapped person is currently receiving?
3. Under what guardianship rules is the severely handicapped worker functioning? Who should provide legal permission before the severely handicapped student accepts employment?
4. Will the severely handicapped worker be protected in the event of injury by Workman's Compensation if he accepts the job under investigation?
5. Will the employer of the severely handicapped worker require bonding or other insurance?

6. Will the employer of the severely handicapped worker require the worker to attend orientation meetings? Can an advocate attend this meeting with the worker?

7. Has the severely handicapped citizens given consent to work on the job under investigation? Along with assessment of job skills, the question concerning whether or not the severely handicapped citizen indeed does want the job he is offered must be determined accurately.

In the paper that follows an attempt will be made to apply the job skill inventory strategy described above to two different jobs that are often available to severely handicapped workers: dishwashing and folding printed matter. There is little doubt that the inventory as it is presented here will not be appropriate for all potential jobs or for all workers. There will be skill clusters added to or deleted from the inventory as different jobs and workers are studied. The degree of adaption necessary to accommodate the unique characteristics will vary within and between individuals. Nonetheless, it does appear that the strategy has functional utility and should be developed further.

An Inventory of Selected Skills and Related Information Required for Competitive Functioning as a Dishwasher in a Public Restaurant[3]

I. General Job Characteristics

A. Reasons why severely handicapped students were considered for this job

There were several factors suggesting that the cluster of skills required of a dishwasher by a local company was within the repertoires of several severely handicapped students in the Madison Public Schools:

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[3] Appreciation is expressed to Stephen Skolasky, Assistant Supervisor of Rennebohm cafeterias in Madison, without whose assistance and cooperation this project could not have been undertaken.

1. To our knowledge no severely handicapped student in Madison Public Schools had functioned previously in a competitive dishwashing position. However, several severely handicapped students had worked as assistant food service personnel in public school settings on a regular basis.

2. It had been determined that mildly handicapped workers had performed in similar settings successfully with the employing company for as long as ten years.

3. When a task analysis of this job was completed, it was judged by teachers that selected severely handicapped students currently possessed many dishwashing skills and that those skills not possessed could be acquired within a reasonable period of time.

4. The potential employer stated a willingness to employ individual severely handicapped students on a part-time basis, provided those students were trained and supervised by school personnel.

5. The public restaurant where dishwashers are employed was within walking distance of a local group home where severely handicapped students resided.

B. General description of the job

Described below are the basic components that hopefully convey the routine cluster of skills performed by the dishwasher (D). This task analysis is divided into four major areas.[4]

1. Home preparation for work

    A. D will launder, iron, and select his/her next day's clothing the night before going to work.

    B. D will prepare his/her sack lunch and prepare the money for work at least one hour before leaving for work.

    C. D will decide upon his/her outer garments for work at least one half hour before leaving for work.

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[4] The task analysis used in this inventory for the most part, was developed by Richard Schwartz (1976). Mr. Schwartz expanded this task analysis into an instructional program designed to teach dishwashing skills to severely handicapped students. The methodology, results and discussion of Mr. Schwartz's program are included as Appendix A ~~to this paper~~. This was done in order to provide the reader with a practical demonstration of how dishwashing skills ~~were~~ taught through the use of the job skills inventory.

D. D will leave his/her group home and walk to the Rennebohm cafeteria in the Newspapers Building 30 minutes prior to the time he/she is due at work.

II. Onsite worker preparation

A. D will enter the work facility and walk to the cafeteria area.

B. D will remove his/her coat and if male he will remove his shirt and put on his working uniform that includes a white cap, a white shirt, and a white apron. If female the dishwasher will put on her hair net and white apron.

C. D will walk to the restroom and wash his/her hands.

D. D will load soap into the dishwashing machine.

E. D will go into the restaurant dining area with a bucket of soapy water, a towel and a sponge. There D will clean the tops of all dining tables.

F. While in the dining area D will check the level of trash in the dining room trash can. If the level is above half full, D will remove the trash and place a new plastic bag in trash receptacle.

G. D will take a standing position at the service window.

III. Tasks related to dishwashing machine operation, garbage disposal operation, and tray clearance.

The following cluster of tasks constitutes the primary cluster of routine skills performed by the dishwasher. Thus, once the dishwasher begins receiving "dirty" trays from customers, the following procedures are initiated and repeated throughout the work day. "Dirty trays" contain assorted silver, glasses, and dishes as well as soiled paper and garbage. Customers place "dirty trays" at the service window and walk away.

Component A

D will prepare silverware, glasses, cups, coffee pots, tulip cups, tea servers, plates, bowls, salad dishes, and trays that will be placed in the dishwashing machine.[5]

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[5] It should be noted that the action is the same for glasses, cups, coffee pots, tulip cups and tea servers in the first category and plates, bowls, salad dishes and trays in the second. The task analysis presented here for glasses is the same for the entire first category and the task analysis for plates is used throughout the second category.

1. D will secure a large metal bowl from the sink.
2. D will pick up the soap container from the shelf and put an appropriate amount in the bowl.
3. D will turn the handle labeled "H" to the right so that hot water flows.
4. D will check the temperature by placing one hand under the faucet while moving the handle with the other until the water is "hot."
5. D will place the bowl in the water flow until the bowl is filled to the appropriate level.
6. D will turn the handle labeled "H" to the left so that the water flow ceases.
7. D will place the bowl to the left of the service window.
8. D will get the silver carrier from the shelf and place it next to the silverware rinse bowl.
9. D will secure a rack with prongs and place it to the right of the garbage disposal.
10. D will secure a flat rack and place it to the right of the garbage disposal.
11. D will take the silver off the tray in the service window.
12. D will place the silver in the soapy water, shake the loose food off, and then leave the silver in the bowl.
13. D will pick out a handful of knives and place them in the knife section of the carrier. D will repeat the action with forks, spoons, and soup spoons.
14. D will put the silver carrier in the flat rack.
15. D will take each glass off the tray.
16. D will empty the glass into the garbage disposal.
17. D will place the glass upside down in the flat rack.
18. D will take the plate off the tray.
19. D will hold the plate in one hand and operate the rinse faucet by squeezing with the other hand so that the spray rinses the food off the plate into the garbage disposal.
20. D will place the plate in rack with prongs.

21. D will squeeze the water sprayer and will continue to spray into the disposal while the disposal is on.

22. D will turn the garbage disposal switch to ON.

23. When the garbage is shredded, D will turn the garbage disposal switch to OFF.

24. D will repeat actions 11-23 until all trays are cleared.

Component B

D will operate the dishwashing machine after steps in Component A have been completed.

1. D will push the drain level to "OPEN."

2. When no water is flowing from the drain, D will pull the drain lever to "CLOSED."

3. D will open the rinse water valve all the way out.

4. When water begins flowing from the drain, D will close the rinse water valve.

5. D will secure the measuring cup, fill the cup with soap, and then pour the soap into the soap container, if the buzzer sounds indicating the need for more soap.

6. D will push up on the dishwashing machine door handle so that the door opens.

7. D will push the rack into the machine.

8. D will push down on the dishwashing machine door handle so that the door closes.

9. D will press the start button.

10. When the red light above the start button goes off, D will push up on the dishwashing machine door handle so that the door opens.

11. D will pull the rack out of the dishwashing machine.

Component C

D will stack all items that have been washed in the dishwashing machine in the appropriate places.

1. D will remove the coffee pots from the rack and place them on the shelf.

2. D will remove the tea servers from the rack and place them on the shelf.

3. D will remove the glasses from the rack and place them in the bin.

4. D will remove the cups from the rack and place them in the cup bin.

5. D will remove the tulip cups from the rack and place them on the shelf.

6. D will remove the plates from the rack and place them on the shelf.

7. D will remove the bowls from the rack and place them on the shelf.

8. D will remove the salad dishes from the rack and place them on the shelf.

9. D will remove the trays from the rack and place them on the counter in the cafeteria.

10. When the silver is dry, D will pick out a handful of knives and place them in the silverware tray. D will repeat the action for forks, spoons, and soup spoons.

Component D

The dishwasher will carry needed items from the work area to the cafeteria.

1. D will carry the cups to the cafeteria and stack the cup bin next to the coffee vendor, returning with the empty bin as a replacement.

2. D will carry the glasses to the cafeteria and stack the glass bin next to the ice water vendor, returning with the empty bin as a replacement.

3. D will remove the trays from the counter and stack them next to the counter.

4. D will take the silverware tray to the cafeteria and fill the cafeteria silverware tray, placing knives, forks, spoons, and soup spoons in the appropriate sections. D will return the silverware tray to the shelf.

5. D will take the utensil tray to the cafeteria. Utensils such as kitchen knives, ladles, spatulas, mixers, etc., are placed in the drawer under the counter. Tea servers are placed next to the hot water vendor.

IV. Preparation for completing work

1. D will secure a clean rag from the box under the sink.

2. D will turn on the rinse faucet and spray water from the service window on the left to the dishwashing machine on the right.

3. D will turn off the rinse faucet.

4. D will wipe the work area with left to right strokes from the service window to the dishwashing machine so that all metal is wiped and the excess water runs into the garbage disposal or the dishwashing machine. D will then wipe all metal with right to left strokes from the end of the counter to the dishwashing machine so that the excess water runs into the dishwashing machine.

5. D will put the rag in the dirty rag box under the sink.

6. D will fill two sinks with hot water and soaking solution. Soiled pans are to be placed into these sinks by other food service personnel. D will scrub with a special pad after the pans have soaked for at least 10 minutes. The scrubbed pans will then be placed in the dishwasher in the manner described in the task analysis for glasses.

7. Usage of the dishwasher is completed when all items dirtied that day are placed in the dishwasher.

8. D will return to the restaurant dining area with a bucket of soapy water and a sponge, and using left to right strokes, D will clean the table tops and will return his materials to their storage areas.

9. D will return to the trash receptacle in the dining area and will remove the plastic bag, seal it, and return it to the dishwashing room. D will place a fresh bag into the trash receptacle.

10. D will remove the broom and dust pan from its storage area, sweep the dishwashing room floor, pick up the dirt in the dustpan, deposit the dirt in the trash can, and return the broom and the dustpan to their storage area.

11. D will remove the mop, mop bucket, and attached mop wringer from its storage area. D will fill the bucket with hot water. D will mop the kitchen floor with left to right strokes, wring out the mop, remove the dirty water into the sink, and return these materials to their storage area.

12. D will go to the restroom area and wash his hands.

13. D will return to the dishwashing room, remove his soiled uniform, place it in the dirty clothes receptacle, and put on his own shirt, and other outer garments.

14. D will leave the work facility and walk home.

The next section of the inventory provides a description of work hours, days off, overtime, and breaks.

The dishwashing job under investigation is a part-time position. Specifically, the dishwasher is required to work on three prescribed days weekly for five hours each day. Usually these work days are scheduled in advance and do not change from week to week. However, on occasion the dishwasher is requested to work additional weekdays or on Saturdays. The dishwasher is expected to commence work at 9:30 a.m. and to complete all required duties by 2:30 p.m. The dishwasher receives one 15 minute break for each workday. The break is taken precisely from 12:00 noon to 12:15 p.m. The dishwasher does not receive overtime opportunities. If asked to work on unscheduled days, the dishwasher can accept or reject such requests made by the supervisor.

Since there are no products manufactured on this job, diagrams of completed work are not presented.

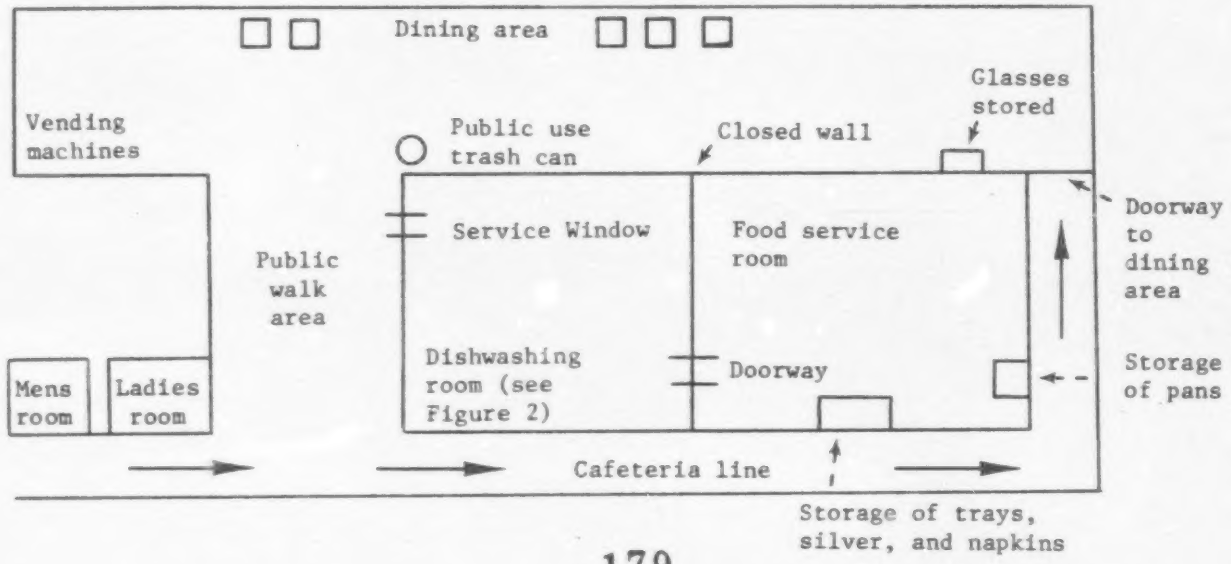
C. A general description of the work setting

The work setting for the dishwasher is a three-room cafeteria area. The cafeteria area is located within the printing building of Madison Newspapers, Inc. This newspaper company employs approximately 600 persons. Of these 600, about 400 persons work between 9 a.m. and 5 p.m. Monday through Friday, and these daytime workers are the principle customers of the cafeteria. The cafeteria itself is operated by a local drug store chain so that, in effect, the dishwasher is employed by a drug store company and not by the newspaper company. The primary meal served within the cafeteria is lunch.

1. The three-room conference area is depicted in the illustration below. The dishwasher works principally in the dishwashing room. However, the worker has duties that are performed in the dining room and in the food service room also.

Figure 1

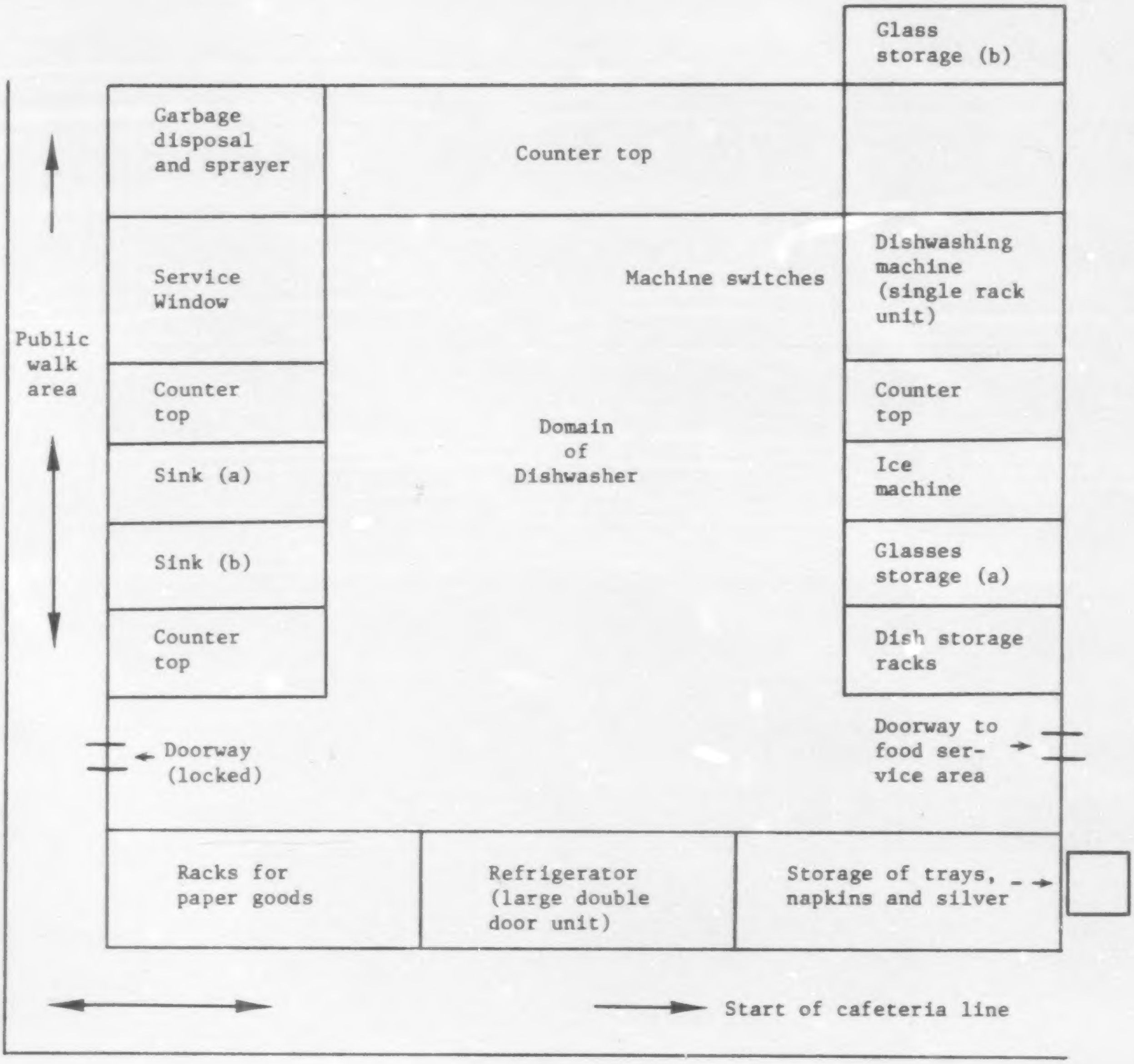
Schema of Food Concession Area



2. A schema of the dishwashing room is depicted below. This is the principle work area of the dishwasher. However, the room is also used by food service personnel for refrigerator and paper products storage.

Figure 2

Schema of Dishwashing Room



3. Setting shifts required of the dishwasher are minimal. The dishwasher spends approximately 90-95% of his/her time in the dishwashing room. Specifically, however, the following movements are necessary:

   a. The dishwasher is required to enter the dining area for as many as six times daily for purposes of cleaning tables, removing trash from trash cans, and for taking a break.

   b. The dishwasher is required to enter the food service area for purposes of storing cleaned pans, silver, and trays. The number of trips to the food service area varies considerably on a daily basis depending upon the amount of business. It was recorded that the dishwasher entered the food service area between 10-40 times during a two-day work period.

   c. The dishwasher can use the public walk area and the public restrooms during break periods.

D. A general description of the social environment

1. Information related to fellow workers - The dishwasher performs his duties along with three fellow employees hired by the cafeteria operators as food service workers. One of these food service workers supervises both the dishwasher and the remaining two food service persons. Described below are the visible characteristics of each fellow worker, their duration of employment, and statements made to the job assessor concerning their past experience with handicapped workers.

   a. Food service worker A was a female, approximately 41 years old. She wore a company-provided uniform dress, her own flat shoes and glasses. Worker A was also the supervisor. She has been with the food concession company for about three years and in her current position and job location for one year. Worker A told the job assessor that she had worked with a partially handicapped dishwasher and food service worker last year at another location. Worker A stated that each handicapped worker "did his job well but was kind of slow." Worker A said she "did not mind working with these people as long as they did their job well and didn't have to be looked after all the time."

   b. Food Service Worker B was a female approximately 26 years old. She wore a company provided uniform dress and her own flat shoes. Worker B was noticeably overweight. She had been employed by the cafeteria for less than one year at the current location only. Worker B told the assessor that she "had worked for Central Colony[6] as an aide last year" and that she felt "it was a good thing to get retarded people jobs instead of keeping them all out at the Colony."

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[6] Central Wisconsin Colony is a public residential facility for retarded citizens.

c. Food Service Worker C was a female approximately 55 years old. She, too, wore a company provided uniform dress and her own flat shoes. Worker C had been employed by the cafeteria for approximately three years. She had worked at two other locations previously. Worker C assisted Worker A in ordering food. Worker C made no comments to the assessor concerning the employment of handicapped workers.

2. Information related to supervision - The dishwasher receives most of his/her supervision from food service Worker A. However, during infrequent visits, the general manager of several cafeterias evaluates and in some cases supervises the dishwasher. Thus, the remainder of this section will deal with the type and amount of supervision emanating from Worker A, since supervision from the general manager was infrequent.

The supervisor (Worker A) visited the dishwasher for purposes of evaluation and to give orders approximately 12 times during a five-hour work period. During these visits the supervisor does not discuss work performance. This is important to note because, as is frequent with competitive jobs, the worker is not receiving daily feedback concerning successful versus unsuccessful performance. Instead, the supervisor evaluates what needs to be done and in what priority and based on this information, the supervisor gives the dishwasher several one or two component verbal directions. The supervisor told the examiner that she does not closely monitor a dishwashers performance. She said that after initial training, dishwashers are expected to perform their duties with a minimum of supervision.

During a typical one-hour work period, the supervisor gave the dishwasher approximately three single or double component verbal directions. A listing of sample commands follows:

a. Take the trash out.

b. Empty the dining room trash can.

c. Send out more dishes and silver.

d. Clean the dining room table.

e. Help Millie carry the cheese to the service area.

f. Take your break.

g. Don't talk when it's busy.

h. Work faster.

i. Put your things away.

j. Clean the tables before you empty the trash.

k. Unload the dishwasher, then carry the trays out.

l. Don't forget to check your silver.

m. Remember to wash your hands after you use the restrooms.

n. Don't forget to soak your pans before you scrub them.

o. Put the soap in the dishwasher whenever it needs it.

p. Don't forget to check your silver to make sure it's clean before you put it out.

q. Remember to wash all silver twice.

r. Keep your counter clean.

s. Keep your front window clear at all times.

t. Don't overload the dishwasher.

u. Allow enough time to finish your pans.

3. Information related to special contingencies of the employer - Listed below are the specific regulations and procedures suggested by the employer. Most of these rules were taken directly from the employees' manual describing company policies:

a. No gum chewing or smoking is permitted on the job.

b. Male hair cuts must be trimmed 1 inch above the shirt collar.

c. Clean uniforms are expected to be worn by employees every day.

d. Two hours notice by phone is expected in advance of any emergency absences.

e. If possible, one day's notice by phone or in person is expected prior to taking a sick day.

f. Two weeks notice in writing is expected prior to quitting a job.

g. Special days off should be arranged with the supervisor 10 days in advance.

h. Employees are permitted to take their breaks in the regular dining area. However, the employee should let the supervisor know precisely when he/she is taking a break.

II. Specific Work Skills Required

A. Basic physical sensory-motor skills required

Dishwashers are expected to perform an array of physical sensory-motor skills. Although as suggested in the task analysis, there is a general sequence under which these skills are performed, that sequence will vary depending upon variables such as the number of customers, the particular preferences of the dishwasher, and the directives of the supervisor. Hopefully, the listing of physical sensory-motor skills below is sufficiently inclusive to account for the skills required in a typical work day.

1. Weights and materials - The dishwasher should be able to pick up, carry, and set down items that weigh up to 50 pounds, and he/she should be able to carry these items a distance of up to 50 feet. Large and heavy items that need to be picked up, moved and set down are delineated below.

    a. Dish Racks - Dish racks are approximately 3 feet by 3 feet square and can contain pans, silver, dishes, trays, glasses, and coffee servers. Frequently loaded racks need to be moved from one counter top to another within the dishwashing room. The heaviest of these loaded racks is filled with silver, while the lighter racks contain coffee servers and small dishes. The average weight of a loaded dish rack is approximately 40 pounds (range = 10 lbs. to 60 lbs.).

    b. Canisters of soap used in the dishwashing machine - These caisters are approximately 3 feet tall and 1.5 feet in diameter. They can weigh up to 50 lbs. Soap canisters are brought into the dishwashing room on 4-wheeled dollies and must be unloaded from a dolly and placed under the counter near the dishwashing machine. Once on the floor it is easier to move a soap canister by sliding or rolling it rather than by picking it up.

    c. Plastic bags containing trash and garbage - The plastic bags hold approximately 30 gallons of waste and when full they can weigh up to 50 lbs. Loaded plastic bags must be removed from trash receptacles and carried distances of up to 50 feet.

    d. Groups of pans - Groups of pans taken from the serving area into the dishwashing area can weigh up to 30 lbs. The pans are placed one inside another and are carried by hand.

    e. Groups of dishes - Groups of piled dishes are moved distances of up to 5 feet and may weigh up to 15 lbs. Dishes can be piled up as many as 30 high. The movement of these piled dishes requires balancing abilities as well as weight-lifting skills.

2. Unusual visual and auditory skill requirements - The dishwashing job does not require visual or auditory skills of an unusual nature. Thus, it was determined by both the supervisor and the assessor that a "normal range" of visual and auditory skills would be sufficient.

3. Amount of time standing and sitting - The dishwasher working a

typical five-hour day is required to stand on his feet for four hours, and 45 minutes. The dishwasher is not involved with any duties that can be performed in a sitting position.

4. Physical demands deemed crucial - Listed below are the major physical motor skills required. All physical motor skills described below must be performed without assistance.

   a. The dishwasher is required to carry racks weighing up to 50 lbs. from one counter to another across distances of up to 25 feet.

   b. The dishwasher is required to carry 30 gallon trash cans containing waste weighing up to 50 lbs., across distances of up to 50 feet.

   c. The dishwasher is required to move 30 gallon canisters of soap from a 4-wheel dolly onto the floor of the dishwashing room, a distance of up to 5 feet.

   d. The dishwasher is required to lift, carry and set down groups of pans weighing up to 30 lbs., across distances of up to 25 feet.

   e. The dishwasher is required to lift, carry and set down groups of pans weighing up to 20 lbs. and piled up to 30 dishes high, across distances of up to 25 feet.

   f. The dishwasher is required to load and unload silver, dishes, pans, trays, glasses, and other containers placed in the dish racks.

   g. The dishwasher is required to remove garbage and trash from dishes, silver, trays, pans and other containers and to place the garbage and trash in the disposal and trash can respectively.

   h. The dishwasher is required to load and unload handfuls of silver, into and out of utensil baskets. The utensils must be placed upright in the silver racks and each handful taken or removed should contain at least 10 pieces of silver.

   i. The dishwasher is required to push loaded racks into and pull out of the dishwasher machine. These racks are moved in and out of the machine a distance of up to 10 feet. The pushing and/or pulling movement should facilitate the sliding of these racks along the counter tops into and out of the dishwashing machine.

   j. The dishwasher is required to clean table tops, counters and machinery using a wet rag and hot soapy water in a bucket. Other important subskills in this motor area involve wringing out the rag and judging when it is necessary to place the rag into the water bucket for cleaning.

k. The dishwasher is required to mop the dishwashing room floor. The floor area is about 20' by 20'. The mop when wet weighs approximately 20 lbs. and must be pushed across the floor. A special mop wringing apparatus must be pushed down and up to wring the mop after cleaning in a bucket of hot soapy water. The mop wringing apparatus requires the dishwasher to exert approximately 40 lbs. of pressure when drying the mop.

l. The dishwasher is required to place dishes, pans, silver, trays, glasses, and special containers on appropriate shelves in the dishwashing room and in the serving room.

m. The dishwasher is required to soak and hand clean dirty pans brought into the dishwashing room from the serving area. The pans are soaked in special solution and they are scrubbed using a special cleaning pad. It should be noted that pan cleaning must be accomplished within specified time periods (see schedule depicted in Figure 3, page 41). That is, each pan must be cleaned in approximately 2 minutes.

n. The dishwasher is required to remove cleaned trays from the dishwashing machine, pile such trays into groups of up to 25 trays, carry the trays to the food service room, and place the trays in appropriate racks.

B. A listing of basic interpersonal skills required

1. Direct verbal responses required after supervisory commands.

As mentioned in the Language requirements section of the inventory, there are no verbal responses required of the dishwashing job under assessment. However, the dishwasher should be able to functionally respond to supervisory commands with "yes" or "no" verbal statements or gestures and then should procede to carry out the directions given.

2. The numbers and types of social interactions conducted among fellow workers.

a. Although the dishwasher is not required to socially interact with fellow workers, he/she should be able to respond to others with "yes" or "no" statements. In addition, the dishwasher should maintain a facial expression that is socially acceptable to other workers. Grimaces, blank expressions, and uncontrolled smiles, for instances, are not appropriate.

b. The dishwasher should also be able to greet and say farewell to fellow workers when beginning and ending work respectively. Thus the following selected cues and responses are not essential to job performance, but probably will enhance social success over sustained periods of employment:

Selected Social Cues from Supervisor or Fellow Worker	Dishwasher's Possible Socially Acceptable Responses
(1) Nice day.	(1) Yes, it's a nice day.
(2) Good to see you.	(2) Thank you, it's good to see you.
(3) Hope you have a good day at work.	(3) Thanks, you too.
(4) Don't spend all that money in one place.	(4) I won't.
(5) Take care of yourself, now.	(5) I will.
(6) That's a good job.	(6) Thanks.
(7) What's up today?	(7) Not much.
(8) What are you doing after work?	(8) Watching TV; going shopping; playing ball.
(9) What's the weather like?	(9) Clear, Sunny, Cloudy. I don't know.
(10) You look sharp.	(10) Thanks.

3. A description of lunch break and restroom activities.

   a. The dishwasher is required to initiate his/her own lunch break. This break is to be taken from precisely 12:00 noon to 12:15 p.m. on each work day. The dishwasher is expected to perform the following skills prior to and during the lunch break:

      1) The dishwasher should clean all dishes, trays, and glasses in the vicinity of the dirty dish window.

      2) The dishwasher should notify Food Service Worker A that the lunch break is to be taken.

      3) The dishwasher should remove his/her white apron.

      4) While on break the dishwasher should use the proper restroom facility if necessary.

      5) While on break the dishwasher should take his/her pre-packed lunch from the storage area and take a seat at an unoccupied table in the dining room.

      6) While on break the dishwasher should use the vending machines to secure a drink if desired.

      7) The worker must attend to the time of day so that steps 1 through 7 are completed before 12:15 p.m.

b. The employee eating area is the same facility described earlier as the dining area. Restrooms are modern facilities located approximately 12.0 feet from the dishwasher's primary work area. Usually the restrooms are well supplied with soap, paper towels, and toilet paper.

4. Procedures for finding additional work.

Frequently there are time intervals during the work day when the dishwasher completes all tasks required. For example, the dishwasher is often without specific work from 10:30 a.m. to 10:45 a.m. and from 11:30 a.m. to 11:45 a.m. daily. These are periods of slow business and require minimal dishwashing and/or clean-up activities. Delineated below are a selected series of work tasks that can be performed during periods when the dishwasher is without routine work. These selected tasks are not "make work projects" because they are, for the most part, required later in the day. However, these additional tasks should be discontinued whenever normal dishwashing and clean-up skills are required.

Additional Tasks

a. The dishwasher can clean and dry the dining room table tops.

b. The dishwasher can mop the dishwashing room floor.

c. The dishwasher can clean the dishwashing machine and its parts.

d. The dishwasher can clean the counter tops inside the dishwashing room.

e. The dishwasher can organize the paper storage area within the dishwashing room.

f. The dishwasher can clean the area surrounding and below the garbage disposal.

g. The dishwasher can load extra silver, glasses, and napkins in containers within the Food Service Area.

h. The dishwasher can sweep the floor in the dishwashing room.

i. The dishwasher can remove papers and trash from the tables in the dining area and place them in the trash receptacle.

j. The dishwasher can pick up papers left on the floor of the public walk area and the dining room area, and place them in the trash receptacle.

It should be noted that the cafeteria operators are not responsible for certain facilities operated by Madison Newspapers. Thus, the dishwasher should not engage in the following additional work activities:

a. The dishwasher should not attempt to clean the restrooms.

b. The dishwasher should not attempt to clean or repair the vending machines.

c. The dishwasher should not attempt to clean the floors or tables beyond the Food Concession Area depicted in Figure 1.

5. Unexpected social interactions

a. The dishwasher is not expected to greet new acquaintances. However, the following cues and responses would suggest a manner of handling unexpected situations of this nature should they occur:

Selected cue from stranger	Possible worker response
(1) Hello, my name is _____.	(1) Hello, I'm (name).
(2) What's your name?	(2) (name)
(3) Hello ______. How are you doing today?	(3) Okay.
(4) Do you like working here?	(4) Yes or no.

b. On occasions dishwashers were presented with limited opportunities to interact with the public. When these situations occurred, the assessor noted that the cue from the stranger is often similar to those outlined above and to those in the Interpersonal Skills section. The dishwasher should respond as suggested or he/she should simply nod in acknowledgment of the stranger's cue. Most interactions with the public occurred when the dishwasher was in the area of the service window or when cleaning tables in the dining area.

C. Language Skills Required

1. The required level of direction following skills can vary across supervisors and can vary with even the same supervisor. Thus, when this particular job was assessed it was determined that the supervisor typically gave more one component verbal directions than two or three component verbal directions. It should be noted that two and three component verbal directions were used, especially during periods when the dishwasher had not completed required duties in a manner satisfactory to the supervisor. Selected examples of 1, 2, and 3 component directions frequently used by the supervisor are provided in the Information related to supervision section of this inventory.

2. Listed on the following page are selected nouns, verbs, adjectives/adverbs, and prepositions that are used frequently by dishwashers and food service workers employed by the cafeteria under discussion:

Selected noun inventory

- customer
- dishwasher
- rack
- trash cans
- garbage disposal
- wheel cart
- dolly
- sink
- faucet
- button
- egg stains
- soap powder
- counter
- shelves
- cafeteria
- work area
- your things
- plates, trays
- hot water
- cold water
- extra
- silver carrier
- conveyor belt
- dish loader
- dish soap
- plastic vs. glass
- scraps
- paper vs. garbage
- valve
- prong rack
- flat rack
- silver rack
- coffee pots
- temperature
- bowl
- silver
- containers
- hose
- hot water valve
- cold water valve
- steam valve
- start button
- stop lever
- guide
- bottom conveyor belt
- trays
- rack, flat vs.
- rack with prongs
- tulip cups
- utensils
- rag
- soap dish
- fan
- overhead fan
- rinse bowl
- tray window
- tea servers
- salad bowls
- silver (spoons, knives, forks)
- dirty dishes/ clean dishes

Selected verb inventory

- bring
- return
- push
- pull
- turn
- press
- give me
- get
- wipe
- grab
- hold
- take
- turn on/off
- go
- work on
- fill
- turn on
- straighten
- shake
- squirt
- scrape
- drain
- put away
- cut off
- clear
- rack
- mop up
- take out
- go get
- set
- stand
- hurry
- quick
- lift
- put down
- set down
- help
- remember
- don't forget
- overload
- carry
- put away
- stack
- turn off
- get
- clear
- rinse
- check
- stack
- close
- rinse
- turn off
- empty
- wipe off

Selected adjective/adverb inventory

- red
- green
- blue
- yellow
- brown
- black
- silver
- white
- big
- small
- light
- heavy
- hard
- soft
- wet
- dry
- hot
- cold
- fast
- slow
- easy
- hard
- dirty
- clean
- all
- none
- when
- your
- mine
- ours
- company owned
- broken
- fixed
- working
- not working

Selected preposition inventory

- off
- on
- up
- down
- beside
- next to
- over
- under
- beneath
- above
- below
- near
- for
- from
- to
- before
- after
- whenever
- at
- then
- out
- in
- around

3. In addition to the use of the above inventories, the dishwasher should be able to demonstrate expressive *yes* and *no* appropriately.

4. When the examiner assessed the expressive requirements for this job one dishwasher did not use verbal expressions other than *yes* and *no*. However, another dishwasher did communicate with workers and supervisors. Thus, the following responses are suggested as optional verbal skills for the dishwasher:

   a. I need help.

   b. I don't know where the _____ (words from noun inventory) is.

   c. Can I take my break, please?

   d. Can I use the restroom please?

   e. Where is the _____ (words from noun inventory)?

   f. Can I help you?

   g. The _____ (words from noun inventory) is broken.

D. Functional academic skills required

1. Delineated below are the functional reading, math, and writing skills deemed crucial to the dishwashing job by both the assessor and the supervisor:

Functional reading skills required

a. The dishwasher must be able to functionally read at least the following words when they are presented across settings and in various types of letter forms, e.g., handprinted, bold printed, capital letter print, small letter print.

Selected reading inventory

a. The dishwasher should be able to read his/her name.

b. The dishwasher should possess the skills necessary to read the following selected reading vocabulary:

push/pull
off/on
out of order
hot/cold
spray
up/down
do not enter
handle with care
ice machine

soap
cleaner
window
food service area
dishwashing room
dining area
exit
trash can
disposal

storage area
silver
trays
napkins
doorway
utensils
refrigerator
dishwashing machine
dishwasher
men/women

write
print
rack
water
heat
sink
reset
public
garbage
cafeteria

c. Functional reading of the work schedule depicted in Figure 3 is required of the dishwasher.

Figure 3

Name	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Belmore	9-1	10-2	10-2	10-2	10-2	OFF
Brown	OFF	4-8	4-8	4-8	4-8	7-2
Schwartz	3-7	3-7	4-8	4-8	4-8	3-7
Certo	10-2	10-2	10-2	10-2	10-2	OFF
Van Deventer	10-2	10-2	10-2	10-2	10-2	OFF
Crowner	4-8	OFF	4-8	4-8	4-8	3-7
Pearlman	4-8	OFF	4-8	10-2	10-2	10-2

d. Functional reading of notices posted is not required of the dishwasher.

Functional math skills required

a. The dishwasher must have the skills necessary to rationally count objects up to 10. These objects can vary across several dimensions and are found in any part of the work setting. For instance, the dishwasher may be requested to place 10 clean pieces of silver in the rack located in the Food Service Area.

b. Functional addition and subtraction of objects are not required skills of the dishwasher.

c. Clock reading and money management math skills are described in the Supportive skills section of the inventory.

Functional writing skills required

a. The dishwasher must have the skills necessary to print or write his first and last name. These skills should be performed across types of paper, types of writing instruments, and in various physical settings. For example, the dishwasher must sign for his/her check twice monthly and may be asked to do this in any room of the cafeteria, and with any type of writing instrument available.

b. The dishwasher is not required to have other writing skills beyond those involving name writing. However, as will be described in the Supportive Skills section of the inventory, the dishwasher is required to obtain a Social Security card. Thus, an optional handwriting skill could include the ability to fill out the application form required to secure a Social Security card. Selected items on such an application are delineated below:

Print full name ______________________ First ______ Middle ______ Last ______

Place of birth ______________________ City ______ County ______ State ______

Mothers name ______________________

Fathers name ______________________

Your address ______________________ Number & Street ______ City ______ State ZIP ______

Today's date ______________________

Telephone number ______________________

Date of birth ______________________

Your sex ______ Male ______ Female

Your color ______ White ______ Negro ______ Other

Sign here ______________________

2. Essential categorization and discrimination skills required

Several of the categorization and discrimination skills deemed critical to job performance are presented below. The dishwasher should display the skills necessary to discriminate among and/or categorize the following:

a. Variations of silver, e.g., knives, forks, spoons

b. Variations of glasses, e.g., large, small

c. Variations of plates, e.g., large, small

d. Variations of trays, e.g., yellow, red, white

e. Variations in general machines, e.g., disposal, dishwasher

f. Variations in specific machinery component parts, e.g., switch, door, belt

g. Variations of racks, e.g., flat bed, prong

h. Variations of receptacles, e.g., cans, jars, bottles

i. Variations of paper goods, e.g., napkins, paper, caps

j. Variations of printed signs, e.g., exit, in

k. Variations of directions on machinery, e.g., push/pull; off/on; up/down

l. Variations of faucets, e.g., large handles, small handles

m. Variations of cleansers and soaps, e.g., dishwashing soap, table cleaning soap

n. Variations of tables and chairs, e.g., green tables, red tables, green chairs, red chairs

o. Variations of tools, e.g., mop, broom, wringer

3. Short term memory requirements

It should be noted that on occasions dishwashers are required to carry out orders received from supervisors after 30 to 60 second time delays. For example, if a dishwasher was loading a rack and was about to place the rack in the dishwashing machine, and at this same instant he/she might be instructed by the supervisor to take the trash out, the dishwasher should remove the trash after current operations with the dishwashing machine were completed. However, if the dishwasher manifested poor short term memory skills, she could compensate to some degree by staying on schedule and thus minimize the number of tasks directed to her by the supervisor.

F. Machine and tool skills required

Delineated below is a listing of the machinery and tools that the dishwasher will need to operate and use. Each tool or machine is described in terms of its physical characteristics and the purposes for which it is used.

1. Hot and cold water taps. There are two sets of hot and cold water taps located above and two sinks presented in Figure 2. The taps operate on a standard push/pull principle. Pushing the levers inward toward the wall reduces water pressure and eventually shuts off the flow, while pulling the levers outward toward the dishwasher increases water flow. There are at least the following uses for the hot and cold water taps.

a. The taps are operated to fill the sinks in order to clean pans.

b. The taps are operated to fill the mop and cleaning buckets.

c. The taps are used to wash sponges and cleaning cloths.

d. The taps are used to fill silver buckets.

2. Water spray apparatus. The water sprayer is located directly above the garbage disposal machine. It is operated by a standard squeeze/release motion. Thus, the sprayer is turned on and its water flow increased by squeezing the sprayer handle in a manner similar to operating a bicycle hand brake. The sprayer is turned off or its flow can be decreased by releasing the squeezing pressure on the sprayer handle. The sprayer is used for at least the following functions:

   a. The sprayer is used to spray water on plates and trays in order to remove waste from and direct waste into the sink disposal.

   b. The sprayer is used as the source of water necessary to operate the garbage disposal. Every time the disposal is turned on, the sprayer must be squeezed so that a relatively hard flow of water is directed into the disposal hole.

   c. The sprayer is a water source necessary for cleaning specific counter tops. The sprayer can be directed at a counter top for purposes of rinsing and cleaning.

3. Racks placed into the dishwasher - Racks placed into the dishwasher are approximately 3 feet by 3 feet square and can be loaded with pans, silver, dishes, trays, glasses, and coffee servers when these items are placed in the dishwashing machine. Since the racks are run through the dishwashing machine they rarely require special cleaning. There are 2 types of racks used in this job. Rack Type A is a flat bed rack, and the dishwasher can load silver, coffee servers, fruit cups, and dessert cups, and pans into it. Rack Type B is a prong rack and can be used for loading trays, glasses, and all types and sizes of dishes. Once loaded the racks must be pushed into the dishwashing machine by hand.

4. Utensil bracket - Before silver can be placed on flat bed racks, it must be loaded into a utensil bracket. A utensil bracket is a device that holds the silver upright while it is run through the dishwashing machine. A utensil bracket is approximately 16 inches long, 8 inches wide and 6 inches tall. A utensil bracket resembles an open shoe box. In addition, a utensil bracket contains individual compartments for housing small groups of silver upright. Each compartment can accommodate approximately 15 pieces of various silver. As described in the Basic physical sensory-motor skills section of the inventory, the dishwasher is required to place handfuls of silver into and from the utensil bracket. The utensil bracket is used only for enclosing silver being cleaned in the dishwasher. Thus, the utensil bracket does not require special cleaning. When not in use, the utensil bracket is kept on the shelf labeled Dish storage racks in Figure 2.

5. Garbage disposal - The garbage disposal is located to the immediate right of the service window. The garbage disposal is operated by pressing an off/on button below the counter directly in front of the disposal. As mentioned in the Water sprayer description, the disposal should not be operated until the water sprayer is aimed into the disposal and squeezed on. To use the garbage disposal most efficiently, the dishwasher should operate this machine only when the inner hole of the disposal is filled with garbage to a point level with or slightly above the level of the counter top. The sole purpose of the garbage disposal is to shred and remove soft garbage. The machine will malfunction or become totally inoperative when items such as paper, silver, or large bones are placed in it. Obviously, the disposal is a somewhat hazardous machine, and should never be operated when the dishwasher's hands are in the disposal hole.

6. Dishwashing machine - The dishwashing machine is located in the upper right corner of the dishwashing room as depicted in Figure 2. The dishwasher is operated by pressing an off/on button located below the right side, under the counter. A detailed description concerning the operating procedures specific to the dishwashing machine is provided in the General Characteristics section of the inventory. The dishwasher is obviously the machine or tool most frequently used by the worker. To operate the dishwashing machine most efficiently, the dishwasher should pass racks through the machine almost continuously during peak business hours. During the remaining work hours the dishwashing machine is operated only when one or more racks can be filled with dirty dishes, cups, silver, glasses, or pans.

7. Broom - The dishwasher is required to sweep the dishwashing room floor prior to mopping it. The broom used for this purpose is a standard straw broom. The broom is approximately 5 feet in length and has a sweeping base of approximately 10 inches. The broom is stored in the lower left corner of the dishwashing room depicted in Figure 2. Obviously, a standard type dustpan should accompany the broom.

8. Mop, mop bucket, and mop wringer.

    a. Mop. The mop used in this job is a standard commercial type. The mop is approximately 4 feet tall and its base is composed of a cluster of stringy cloths. The mop is used to clean the dishwashing room floor after it has been swept. The mop is stored in the lower left corner of the dishwashing room depicted in Figure 2.

    b. Mop bucket. The bucket is approximately 2 feet tall and 1.5 feet in diameter. The bucket is housed above a set of rollers and can be moved across the floor by grasping the bucket handle. The bucket is stored in the same area as the broom and mop.

c. Mop wringer. The mop wringer is housed on the side of the mop bucket and is usually above the bucket's water level. The mop is placed in the wringer after the mop has been cleaned in the mop bucket. The mop wringer handle opens and closes the wringer. The dishwasher must exert approximately 40 lbs. of pressure on the wringer handle when drying the mop. The wringer is stored with the bucket.

d. Sponge, cleaning cloths and small buckets. These items are stored in the same area as described for the broom and mop equipment. The sponge, cleaning cloths, and small buckets are used to clean tables in the dining area and to clean counter tops in both the dishwashing and food service rooms.

G. Hygiene skills required

Workers in a restaurant facility must adhere to high standards of grooming and body care. Listed below are the minimum hygiene requirements suggested by the employer and assessor that comply with standards set by the cafeteria operators:

1. All female workers must wear hair nets at all times.

2. All male workers must wear cook hats at all times.

3. All workers are expected to bathe and use a deodorant daily.

4. All male workers are required to be clean shaven daily. Beards are not permitted.

5. All employees are required to work with clean hands at all times. Workers must wash their hands after using the restroom, after mopping, or after completing any function that could cause the worker's hands to be unsanitary.

6. All workers are expected to wear clean uniforms daily.

7. All males are expected to get haircuts during regular intervals.

8. Leather shoes must be worn at all times. Tennis shoes are not permitted.

III. Supportive skills and other information required

Suggested below are selected transportation, work preparation, money management, and time-telling skills required for independent functioning as a dishwasher. As we noted earlier, there are some situations when persons other than the severely handicapped worker will assume the responsibility for all or part of these functions. Hopefully, the would-be dishwasher will receive instruction in supportive job skills to the same degree he/she is taught job skills.

A. Transportation skills required

1. The dishwasher will be traveling from his/her home to the job site each time he/she goes to work. The dishwasher will not be going to the job from school or from a downtown location. The distance from the group home to Madison Newspapers is approximately three quarters of a mile, one way.

2. Most dishwashing jobs in the Madison area are located in stores and restaurants on bus lines. Unfortunately, this particular job site is not within walking distance of a bus line. However, since the site is only three quarters of a mile from the group home, it is within walking distance for a dishwasher residing there. Thus, the dishwasher would be required to complete the following transportation skills to walk to and from this job site:

   a. The dishwasher should walk on the sidewalk, whenever possible, and should keep to the right side of the sidewalk.

   b. When there is no sidewalk provided, the dishwasher should walk on the left side of the street pavement, staying as close to the road shoulder as possible.

   c. The dishwasher should be able to walk up and down varying inclines and across varying terrain.

   d. The dishwasher should possess the skills necessary to cross intersecting streets having 3 or less lanes.

   e. The dishwasher should possess the location skills necessary to find the way from the group home to the job site.

3. Possibly the best alternative transportation for this job would be the use of a public taxi. A taxi could be employed when weather conditions were so unfavorable that the dishwasher would be unable to walk to work. (The reader should be aware that these "unfavorable weather conditions" are especially preveland in Wisconsin during the January-February months). Hopefully, the dishwasher will possess the telephone and language skills sufficient to personally call the taxi. However, if this were not the case, the call could be placed by a group home parent.

B. Skills related to work preparation

1. a. While at work a male dishwasher is required to wear and provide at his own personal expense, the following items: leather shoes, dark solid-color trousers (not blue jeans), and clean underwear that includes a plain white T-shirt. In addition, while at work a male dishwasher is required to wear a white

uniform shirt, a white uniform apron, and a white throw-away cap made of paper. A female dishwasher is required to wear and to provide at her own expense the following items: flat leather shoes, and clean underwear. In addition, a female dishwasher is required to wear a company-provided uniform dress and a company-provided hair net.

b. In terms of clothing requirements necessary to get to and from work, the dishwasher must possess the skills necessary to match his outer garment needs with varying weather conditions and temperatures. Thus, in the winter, the dishwasher must wear heavy shoes or boots, a warm coat, gloves, and some sort of hat. In contrast, summer attire for males could include only those items described in 1.a. (above).

c. Laundry skills required of a male dishwasher are minimal since the company-provided shirts and aprons are cleaned by the company and at their expense. However, a male dishwasher is required to perform the following clothes-related skills:

   1) A male dishwasher must have the skills necessary to wash, dry, and iron his trousers and underwear.

   2) A male dishwasher must have the skills necessary to polish his shoes.

d. Laundry skills required of a female dishwasher are more extensive than those of the male counterpart because she is required to launder her company-provided dress. Thus, a female dishwasher is required to perform the following clothes-related skills:

   1) A female dishwasher must have the skills necessary to wash, dry, and iron her company-provided dress and her underwear.

   2) A female dishwasher must possess the skills necessary to polish her shoes.

There are no color combination skills required of either a male or female dishwasher.

2. a. The part-time dishwashing job provides for a minimal lunch break of precisely 15 minutes. Given such a short time interval for lunch, the dishwasher must eat his meal in the dining area depicted in Figure 1.

   b. The following lunch options are available to the dishwasher:

      1) The dishwasher can bring his own sack lunch and obtain soft drinks, milk, or coffee from a vending machine for $.25 in coin.

2) The dishwasher can bring approximately $1.50 in coins and can obtain a cold sandwich and his drink from vending machines.

3) The dishwasher is discouraged from obtaining his lunch in the regular cafeteria, due to the limited amount of time he/she has for lunch.

c. The dishwasher should have the skills necessary to prepare his own sack lunch, since this is not only a work requirement, but also a requirement for residence in the group home.

d. The dishwasher is discouraged from bringing a sack lunch that requires refrigeration because refrigeration space for the cafeteria operation is limited.

C. Basic money management skills required

In most cases, a severely handicapped person hired as a part-time dishwasher, would not rely on his/her wages for total support. The dishwasher would have additional income from sources such as Social Security. However, the average weekly gross payment for a dishwasher described herein is approximately $45.00. Of this $45.00 earned, the workers "take home" pay is approximately $32.00 and he/she is paid bi-monthly.

1. Delineated below is a listing of suggested ways the severely handicapped dishwasher could use his/her income:

   a. For general savings;

   b. For specific savings item(s) such as a vacation or a bicycle;

   c. For direct purchases such as clothing and grooming items;

   d. For unnecessary or luxury purchases such as additional food, liquor, or cigarettes;

   e. For payment toward time purchases such as a radio or a television;

   f. For payment for recreational activities such as movies, ice skating, or camping.

Hopefully, with assistance from a teacher or parent, the dishwasher will establish a budget plan under which portions of his/her income will be divided to allow payment for several of the items listed above.

2. The dishwasher will need to bring money to the job for lunch purposes, for emergency phone calls, and possibly to provide for an emergency taxi cab ride.

   a. If the dishwasher brought his own sack lunch, he/she would need the following amounts in coin form:

telephone	$ .20
drink	.25
emergency cab	1.10
total required daily	$1.55

b. If the dishwasher did not bring a sack lunch, the following amounts would be necessary:

telephone	$ .20
drink	.25
sandwich from vending machine	1.00
emergency cab	1.10
total required daily	$2.55

Thus, in the situations described above, the dishwasher would need functional money use skills to handle between $2.50 and $3.00. In addition the workers would be required to perform these skills independently.

3. The severely handicapped worker is paid by check on a bi-monthly basis.

4. Hopefully, the dishwasher will cash his check at a bank enroute to or in the vicinity of the job site. Several banks in the Madison area provide individualized service to handicapped patrons. Specifically the dishwasher could use the following special services:

    a. A predetermined amount of savings and cash received can be negotiated on a bi-monthly basis, by the dishwasher, his/her guardian, and special service employees of the bank.

    b. The dishwasher could ask for assistance from special service employees each time he/she enters the bank.

    c. The special service employees could be required in advance to notify the dishwasher's group home supervisor or parents in the event of a significant savings withdrawal or application for a loan.

5. Although the degree of independence in public stores is not related to successful performance as a dishwasher, store usage skills should be assessed as part of the job inventory. The assessment of store skills will provide group home parents and teachers with a framework concerning the number and types of purchases the dishwasher can make independently. Specifically we would suggest the following breakdown in this area.

    a. The assessor should determine the types of stores that the severely handicapped worker can currently function in. Perhaps he/she is competent in a grocery store, but needs additional skills in the use of clothing stores.

b. The assessor should determine the amounts of money the worker can functionally use in a store. Perhaps the worker requires a predetermined list of items and the exact or near exact amount of money to purchase the items.

c. The assessor should determine the dishwasher's level of independent functioning in a store. Perhaps the worker is most competent when he/she is with a supervisory person or with other handicapped associates.

Obviously an assessment of this type is specific to the worker in question. However, if this important area of the inventory is overlooked, the worker could become frustrated concerning his/her purchasing power and this in effect could have serious repercussions directly related to work performance.

D. Time telling and time judgment skills required

1. The severely handicapped dishwasher will need time telling skills accurately to within one minute. The dishwasher must commence work, take his break, and finish work precisely to the minute. The dishwasher must perform time telling skills independently, since he/she will not be told by his supervisor when to start, when to finish, or when to take a break.

2. The schedule below is one which depicts several critical occurrences specific to the job under investigation.[7] This schedule, written on a 3X5 card, is posted to the left of the service window depicted in Figure 2. The schedule was developed by a vocational teacher and Food Service Worker A (the dishwasher's supervisor).

Figure 4

10:15	Silver
10:30	Pans
12:00	Break
1:00	Silver
1:15	Pans
2:00	Clean-up
2:30	Finish work

The dishwasher must begin each major task area delineated on the card on or before the time suggested. In addition, the dishwasher must finish a particular task before the next task on the schedule is started. Thus, the dishwasher must be able to pair or match the task written on the card, with a particular time interval.

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[7] These critical tasks do not include all duties performed by the dishwasher, just those with time constraints.

3. The only non-task occurrence that the severely handicapped worker must pair or match with a specific daily time period is lunch. The lunch time period is posted as depicted in Figure 3 and is taken as described in 2 above.

4. The worker must leave his group home 30 minutes prior to the starting time of work. Thus, a dishwasher who commences work at 9:30 a.m. must leave his home at exactly 9:00 a.m.

5. There are no alternative time telling strategies available to the dishwasher, since all time telling skills must be performed independently.

E. Health code requirements

As mentioned previously, the final two components of the job inventory, Health code requirements, and Informed consent and legal requirements are information sections that do not pertain to specific skills required of a severely handicapped worker. However, these areas are essential to a comprehensive inventory and those items specific to the dishwashing job are listed below.

1. A physical examination is not required by the cafeteria operators. However, public school personnel should insist that all potential handicapped workers receive a complete physical before these students begin competitive job training. There are numerous research reports suggesting a high incidence of physical disabilities in severely handicapped persons.

2. There are no vaccines required by the cafeteria operators. However, public school personnel should contact a potential worker's physician to assure that he/she has received vaccines deemed necessary for food service work.

3. Health code requirements specific to restroom use and handwashing are described in the inventory section titled A listing of the basic interpersonal skills required, Part 3. Health code requirements specific to the use of hair nets and paper caps are described in A general description of the social environment, Part 3.

F. Informed consent and legal requirements

1. All workers under age 18 need a work permit in the state of Wisconsin. The steps required of a severely handicapped worker in procurring a work permit are described below:

   a. The potential worker or his/her agent must fill out a work permit application. The form required information similar to that depicted in section D: Functional academic skills required, for completing a Social Security application.

   b. The potential worker must have the application signed by his/her parent or guardian.

   c. The potential worker must return the application, in person, to a local high school or other designated facility.

   d. The potential worker must obtain a Social Security card prior to applying for a work permit.

2. All workers, unless exempted by federal regulations, must obtain or make application for a Social Security card prior to beginning work. The steps required for obtaining a Social Security card are listed below:

   a. The potential worker or his/her agent must fill out a Social Security card application. Portions of this application form are described in Section D: Functional academic skills required.

   b. The potential worker or his agent must return the application form to a local Social Security office.

   c. The potential worker should be informed that his Social Security card will be sent to him/her via U.S. mail and will arrive approximately four weeks after the application is received.

3. Guardianship laws designed to protect the rights of severely handicapped persons vary from state to state. In Wisconsin an 18 year old severely handicapped person has all rights of an adult unless other arrangements are made in a court of law. Some Wisconsin parents of severely handicapped persons have attempted to protect their sons/daughters by asking the courts to allow them to maintain partial guardianship after age 18. Thus, it is in the best interest of all persons involved in the work placement to contact legal parents before a severely handicapped student accepts employment.

4. The dishwasher working for the cafeteria operators is protected in the event of injury by Workmen's Compensation during working hours.

5. The cafeteria operators require that all employees be bonded. The bonding form is a long and complex application that can only be filled out by someone with access to the dishwasher's permanent records and someone who has legal permission to complete such a form.

6. The cafeteria operators require that all employees attend one orientation meeting. The operators allow an advocate or teacher to attend along with the worker.

7. As mentioned previously, the question concerning whether or not the severely handicapped citizen indeed does want the job offered is crucial. For too many years "helpful others" have predetermined what the severely handicapped citizen will and will not do. In an attempt to assess whether a worker wanted the dishwashing job, information related to the following was secured:

   a. The worker's verbal responses to questions, about work as a dishwasher were recorded.

   b. The worker's performance as a dishwasher in simulated settings prior to actual employment was considered.

   c. The worker's performance across work-related domains discussed in the current inventory was studied.

   d. The worker's performance as an employed dishwasher and his/her verbal responses to questions about work as an employed dishwasher were analyzed.

An Inventory of Selected Skills and Related Information Required for Severely Handicapped Students to Function on a Folding Job in a Photographic Media Center[8]

I. General Job Characteristics

A. Reasons why severely handicapped students were considered for this job

There were several factors suggesting that the cluster of skills required for folding promotional material at a photographic media center was within the repertoires of several severely handicapped students in the Madison Public Schools:

1. It had been determined that severely handicapped workers had performed similar folding tasks frequently in sheltered workshop settings.

2. Mildly handicapped and non-handicapped workers had performed similar folding and collating jobs with the employing company and at other businesses in the Madison area.

3. When a task analysis of the job was completed, it was judged by teachers that some severely handicapped students currently possessed many or all skills related to the folding job and that other students could be taught the required skills.

4. The potential employer stated a willingness to employ several severely handicapped students on a part-time basis, provided those students were trained initially by school personnel.

5. The photographic media center where folders were employed is located on a public bus line accessible to selected severely handicapped students.

6. The folding job was appropriate for severely handicapped workers under 18 years of age.

7. Although several skill requirements of the job were similar to those frequently performed in sheltered workshops, the current job location at a photographic media center facilitated the integration of severely handicapped workers with non-handicapped workers.

8. Since the folding job was a short term placement lasting approximately 15 weeks, younger severely handicapped students would be able to work and return to school when the job was completed.

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[8] Appreciation is expressed to Steve Markstrom, Director, and to Jack Lund, Coordinator of Photography at the University of Wisconsin Photographic Media Center, Madison. Without their assistance and cooperation this project could not have been undertaken.

B. General description of the job

1. Described below are the basic components that hopefully convey the routine cluster of skills performed by the folder (F). The task analysis is divided into four major areas:

   I. Home and school preparation for work

      A. F will launder, iron, and select his/her next day's clothing the night before he/she is to go to work.

      B. F will prepare his/her sack lunch and prepare his/her money for work at least one hour before leaving for school.

      C. F will select his/her outer garments for work at least one half hour before leaving for school.

      D. F will leave home and take a bus to school.

      E. At precisely 9:30 a.m., F will leave school, walk to the nearest bus stop and board a bus going to the downtown square.

      F. F will walk from a bus stop at the downtown square to the University of Wisconsin (UW) Photo Media Center on the University of Wisconsin campus. F will enter the UW Photo Media Center at approximately 10:00 a.m.

   II. Onsite worker preparation

      A. F will enter the work facility and walk to the folding/collating room.

      B. F will remove his/her outer garments and place them in an appropriate section of the folding/collating room.

      C. F will walk to the time clock outside the folding/collating room, select his/her time card from the card rack, and punch his/her time card in the time clock.

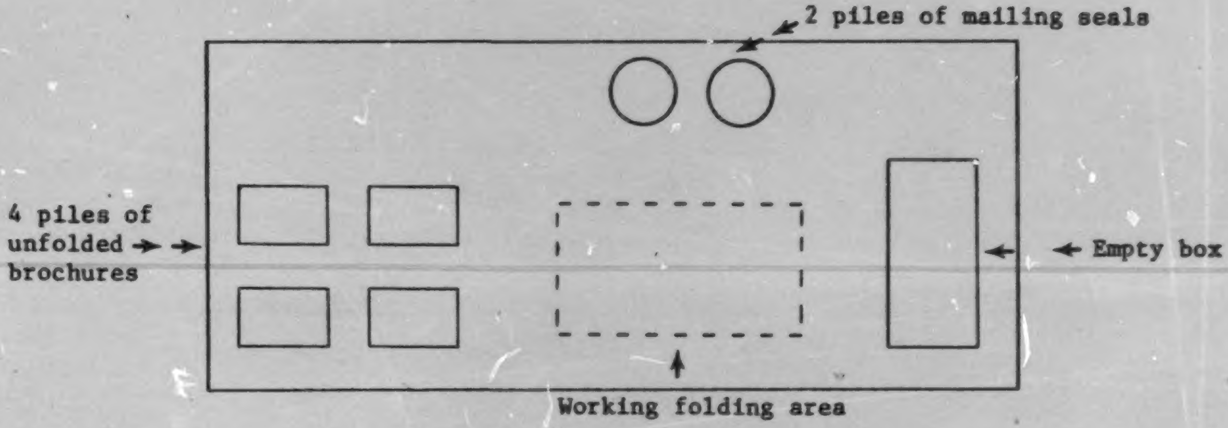
      D. F will remove a full box of unfolded promotional brochures stored in the folding/collating room, and place the brochures on his/her table. F will place the unfolded promotional brochures in 4 piles as depicted in Figure 1.

      E. F will remove two handfuls of mailing sealers from a specified shelf in the folding/collating room and place the seals on his/her work table. F will place the mailing sealers in two piles as depicted in Figure 1.

      F. F will select an empty box located in a designated area of the folding/collating room and place that box on his/her table, as depicted in Figure 5.

Figure 5

Folder's Work Table



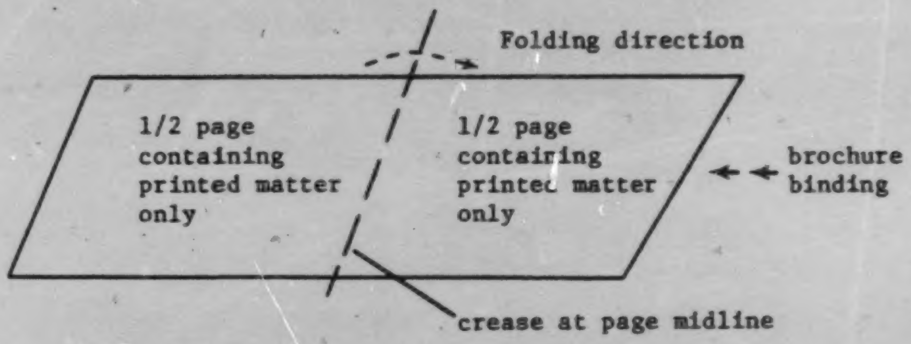
III. Tasks related to folding, sealing/and storing promotional materials

The following tasks constitute the primary cluster of routine skills performed by the folder. Thus, once the folder has prepared his/her materials the following procedures are initiated and repeated throughout the work day.

A. After taking a seat at a designated work table, F will select one unfolded promotional brochure from his/her work area and place the brochure on the table directly in front of him/her.

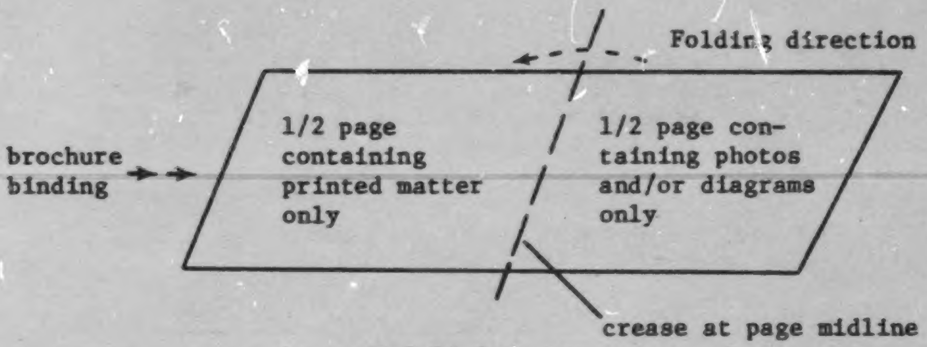
B. F will fold each page of the ten page brochure in the precise manner described below, so that the completed brochures will be prepared for eventual mailing.

1. F will fold Page 1 of the brochure so that a crease is formed at approximately the midline of the page. F will fold Page 1 in a left to right manner, from the brochure as depicted below.


Folding direction
1/2 page containing printed matter only
1/2 page containing printed matter only
brochure binding
crease at page midline

Unfolded page 1

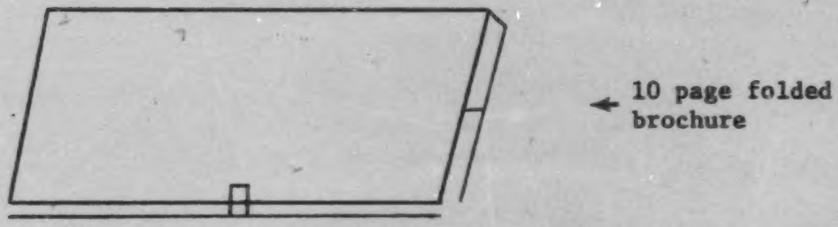
2. F will fold Pages 2-10 of the brochure so that a crease is formed at approximately the midline of each page. F will fold Pages 2-10 in a right to left manner, from the brochure binding as depicted below.


Folding direction
brochure binding
1/2 page containing printed matter only
1/2 page containing photos and/or diagrams only
crease at page midline

Unfolded pages
2-10

C. Upon completion of folding each page, F will select a mailing seal from one of the two rows of mailing seals on the work table and place the seal directly in front of him/her.

D. F will remove the protective paper on the back of the seal and place the mailing seal onto the brochure so that all pages are clasped by the seal as depicted below.



seal clasping 10 folded pages

E. F will place the folded, sealed brochure into the empty box to the right of the work area, as depicted in Figure 1.

F. F will complete Steps A-E for each brochure folded during the work day.

IV. Preparation for completing work

A. F will place his/her folded and sealed brochures on the supervisor's table in the folding/collating room as depicted in Figure 7.

B. F will place his/her unfolded brochures in a box designated for incompleted brochures in the folding/collating room. (See Figure 3)

C. F will place his/her unused mailing sealers on a specified shelf in the folding/collating room. (See Figure 3)

D. F will walk to the time clock outside the folding/collating room, select his/her card from the card rack, and punch his/her card in the time clock.

E. F will put on his/her outer garments.

F. F will leave the facility and walk to the appropriate bus stop.

G. F will board a bus going to school.

H. At approximately 2:30 p.m., F will get off a bus in the vicinity of his/her school at an appropriate bus stop and will proceed to walk to school.

I. F will return home at the end of the school day via a school bus.

There are no skills related to the current folding job that are not part of the sequence described in the above task analysis.

Basic performance criteria related to the folding job are crucial. Thus, criteria are delineated below:

1. Each brochure must be folded, sealed, and packed in less than 90 seconds.
2. Each brochure must be folded so that the crease made on each page is within 1/8" of the actual midline of that page.
3. Mailing sealors are approximately 1 1/4" long. Each sealor must be placed on all brochures so that approximately 1/2" of the seal covers the lower edge of Page 1 and approximately 1/2" of the seal covers the lower edge of Page 10.
4. Each folder employed at the Photographic Media Center must perform Steps A-I continuously at the above criteria levels for approximately 3.5 hours.

The next section of the inventory provides a description of work hours, days off, overtime, and breaks.

The folding job under investigation is a part-time position. Specifically, the folder is required to work on three prescribed days weekly, for 3.5 hours each day. Usually these work days are scheduled in advance and do not change from week to week. The folder is not requested to work additional weekdays or on Saturdays. The folder is expected to commence work at 10:00 a.m. and to complete all required duties by 2:00 p.m.

The folder receives one 30 minute break each workday. The break is taken precisely from 12:00 noon to 12:30 p.m. The folder does not receive overtime opportunities.

C. A general description of the work setting

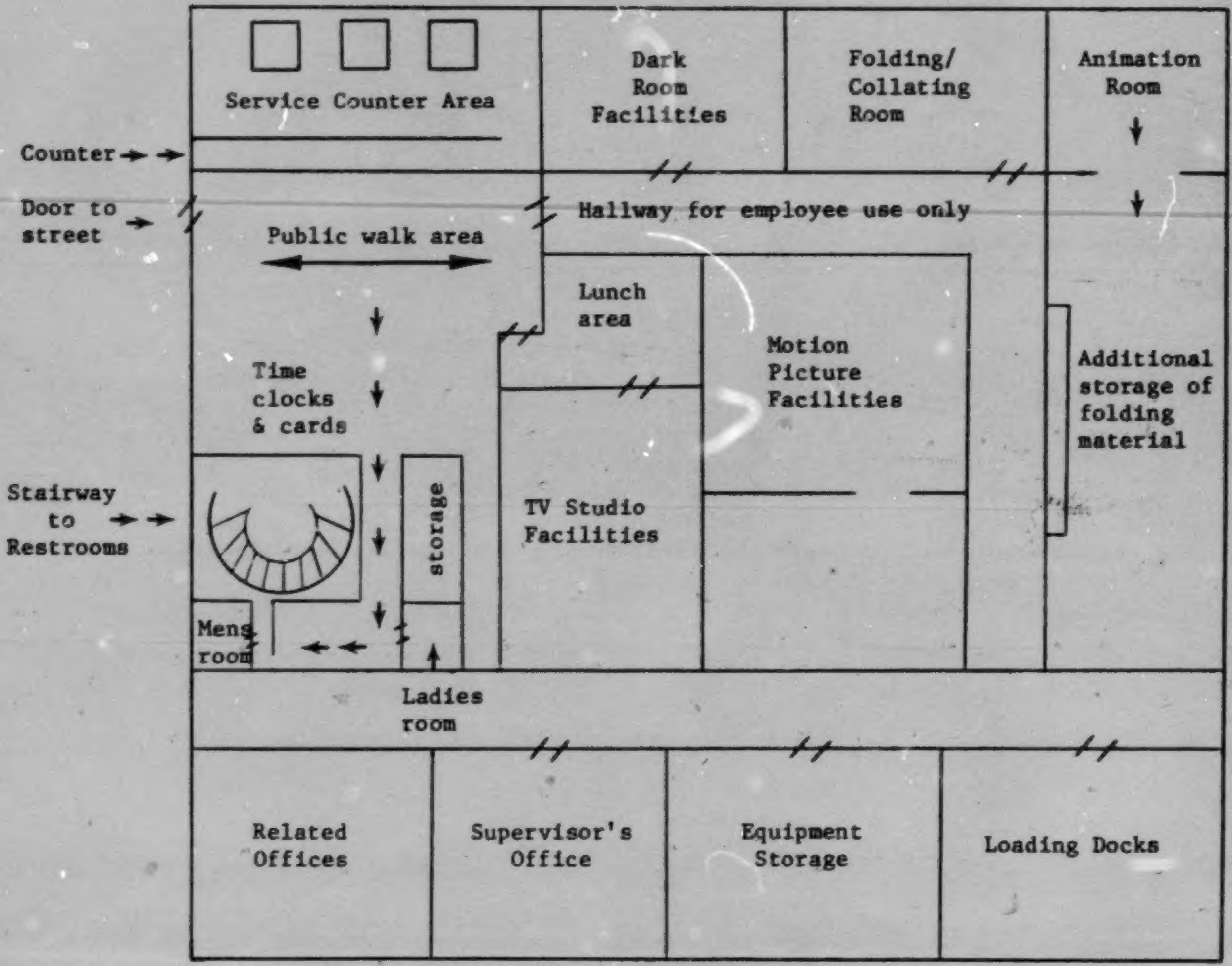
The work setting is in a media center and is located adjacent to campus of the University of Wisconsin, Madison. The media center, although affiliated with the University, is self-sufficient in that it is operated through business generated both inside and outside the University. The media center produces an array of films, video tapes, slide shows, and animated features for its customers. In addition, the center develops film for a large number of Madison's camera and film stores and departments.

The promotional material prepared by five severely handicapped workers was designed to attract new customers to the UW Photographic Media Center.

1. The media center complex is depicted in the illustration below. The folders work principally in the folding/collating room. However, the workers are required to perform some tasks in the Animation Area:

Figure 6

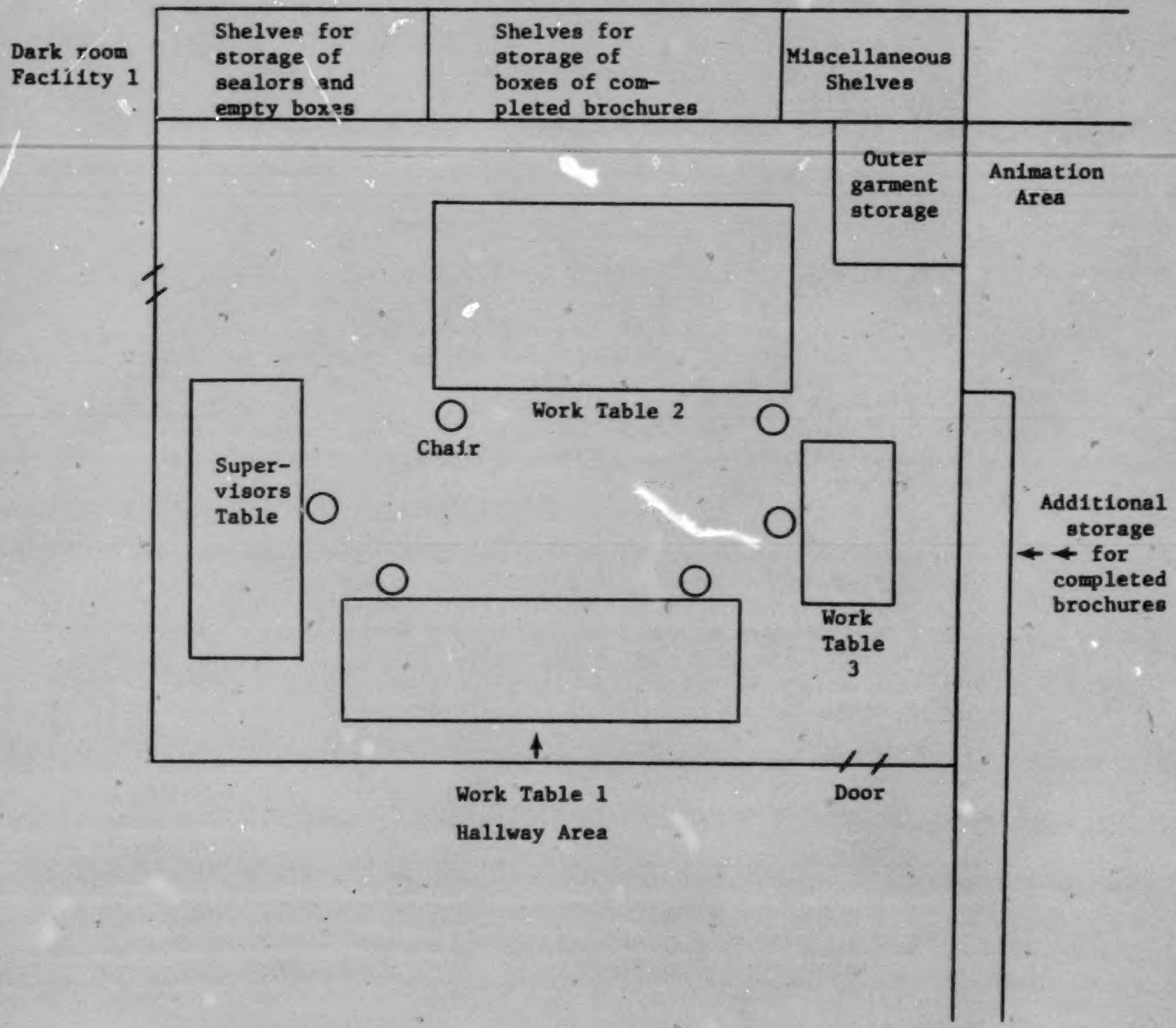
Schema of Photographic Media Center



2. A schema of the folding/collating room is depicted below. The room is specifically arranged for folding promotional brochures. The room is also used by other media employees for storage purposes. (For a detailed illustration of each folder's work areas, see Figure 1)

Figure 7

Schema of Folding/Collating Room



3. The setting changes required of each folder are minimal. The folder spends 90-95% of his/her time in the folding/collating room. Specifically the following setting changes are required:

a) A folder is required to enter the public walk area, twice daily for purposes of punching in and out on the time clock.

b) A folder is required to enter the lunch area, during break periods for purposes of purchasing a soft drink and for eating lunch.

c) A folder can use the public walk area, the employee hallway, and the public restrooms during break periods only.

d) Several folders are required to enter the Animation Area for as many as three times daily for purposes of storing completed, counted brochures.

D. A general description of the social environment

1. Information related to fellow workers. The folders perform their duties along with 38 fellow employees hired by the Media Center as photographers, film developers, TV production personnel, animation specialists, business personnel, secretaries, and administrators. The fellow employees are not involved in the folding tasks. Information related to the visible characteristics, dress, duration of employment, and statements made to the job assessor concerning past experiences with handicapped workers of selected employees follows:

a) A work/study folder was a female, approximately 21 years old. She wore a colored blouse, double knit slacks, and flat leather shoes. This work/study folder was assigned to work in the center on a temporary, short term basis, and had been employed currently for approximately 6 weeks. In addition to folding, the work/study student was assigned to supervise the five severely handicapped workers after their initial training was completed by school personnel. The work/study student stated that she had worked with "handicapped people before," and that during training "the five folders seemed to do their jobs well and probably would not need much supervision." (S_1)

b) Another employee was a male film developer. He was approximately 29 years old, and had been employed by the center for 2.5 years. He wore blue jeans, a plaid sport shirt, and tennis shoes. Although he did not work directly with the folders, he ate lunch with these workers during the same break period and in the same facility. He stated that he had never worked with retarded individuals in the past. He further stated that he was glad that these students had opportunities to work at the center.

2. Information related to supervision. The handicapped folders receive most of their direct supervision from the work/study folders described above. Frequently, however, the Director of the center

evaluates the quality and quantity of finished brochures. Thus, the remainder of this section will detail the extent of supervision emanating from both the work/study folder(S_1) and the Director(S_2).

a) S_1 visited the folding/collating room for purposes of evaluation and to give direct orders approximately 7 times during the daily 3.5 hour work period. During these visits S_1 rarely discussed work performance with each folder. Instead, S_1 usually told the folders collectively that they were doing a fine job and proceeded to check the quality of their folding and sealing.

Those brochures needing refolding and/or resealing were frequently completed by S_1. Thus, as noted in the dishwasher inventory, competitive workers receive little daily feedback concerning successful versus unsuccessful job performance.

During those occasions when S_1 found it necessary to give directions to the folders, the following primarily one component directions were suggested by the vocational teacher.

1) Get your materials.

2) Put your materials away.

3) Work faster.

4) Take your break.

5) Fold straight.

6) Seal the whole book.

7) Take the box into the Animation Area.

8) Do this book again.

9) Talk softly while working.

10) Turn the radio on.

11) Turn the radio off.

12) Get your coat.

13) It's time to clean up.

14) You got a lot done today.

b) S_2, the Media Center Director, visited the folding/collating room primarily for the purpose of quality checking completed brochures. S_2 visited the room approximately 2 times during the 3.5 hour work period, usually once at the beginning of the work day and once at the end. The job assessor noted that in most cases, S_2 gave his directions and/or concerns to S_1 rather than to the folders directly.

3. Information related to special contingencies of the employer. Listed below are the specific regulations and procedures suggested by the employer:

    a) No smoking is permitted in the work areas.

    b) Folders are not permitted to enter dark rooms.

    c) Folders are expected to use restroom facilities during break periods only.

    d) Two hours notice by phone is expected in advance of any emergency absence.

    e) Two weeks notice is expected prior to quitting the job.

II. Specific Work Skills Required

A. Basic physical sensory-motor skills required

Folders are expected to perform several physical sensory-motor skills. As suggested in the task analysis, there is a specific sequence in which most folding skills are performed. Hopefully, the listing of physical sensory-motor skills below is sufficiently inclusive to account for the skills required in a typical work day.

1. Weights and materials. A folder should be able to pick up, carry and set down loaded boxes that weigh up to 25 pounds. A folder should be able to carry loaded boxes distances of up to 25 feet. Loaded boxes contain either folded or unfolded promotional brochures. Boxes are approximately 2' x 3' x 2'. Frequently loaded boxes are moved from one point in the folding/collating room to another. However, on occasion these boxes are moved from the folding/collating room to the Animation Area for storage.

2. Unusual visual and auditory skill requirements. The folding job does not require visual or auditory skills of an unusual nature. Thus, it was determined by both supervisors and by the assessor that a "normal range" of visual and auditory skills would be sufficient.

3. Amount of time standing and sitting. The folder working a typical 3.5 hour day is required to stand for approximately .5 hours and remain seated for approximately 2.5 hours, excluding break period activities.

4. Physical demands deemed crucial. Listed below are the major physical motor skills required. All physical motor skills described below must be performed without assistance.

    a) The folder is required to pick up, carry, and set down a pile of 25 unfolded and unsealed brochures across distances of less than 20 feet;

    b) The folder is required to pick up, carry, and set down a cluster of 15 folded and sealed brochures across distances of less than 20 feet;

    c) The folder is required to pick up, carry, and set down 2 handfuls of unused mailing seals across distances of less than 20 feet. Typically a handful of seals contains between 20 and 35 seals.

    d) The folder is required to pick up, carry and set down 1 loaded box weighing up to 25 pounds a distance of 25 feet;

    e) The folder is required to complete all motor subskills described in the task analysis section of this analysis. All motor subskills must be performed at the aforementioned criterion levels.

B. A listing of basic interpersonal skills required

1. Direct verbal responses required after supervisory commands. As mentioned in the Language requirements section of the inventory, lengthy verbal responses are not required of the folding job under assessment. However, the folder should be able to functionally respond to supervisory commands delineated in the Information related to supervision section with "yes" or "no" verbal statements or gestures and then should procede to carry out the directions given.

2. The numbers and types of social interactions conducted among fellow workers

    a) The folder is not required to socially interact with fellow workers. However, the folder should maintain a facial expression that is socially acceptable to other workers. Grimaces, blank expressions, and inappropriate smiles, etc. are not acceptable.

    b) The folder should be able to greet and say farewell to fellow workers when beginning and ending work respectively. Although a verbal "hello" and "goodbye" are most appropriate in these social situations, a hand wave is probably sufficient.

3. A description of lunch break and restroom activities

   a) The folder is not required to initiate his/her lunch break. In most cases, the lunch break is announced by S_1. However, once the lunch break commences, the folder is expected to perform the following skills prior to break completion.

      1) The folder should use the proper restroom facility.

      2) The folder should take his/her prepacked lunch from the storage area in the folding/collating room and bring it to the lunch area.

      3) The folder should use the proper vending machine to secure a desired drink.

      4) The folder should complete steps 1-3 above before 12:30 p.m. daily.

      5) The folder should return to work in the folding/collating room when told to do so by S_1.

   b) The employee eating area, depicted in Figure 6, is centrally located in the Media Center. Restroom facilities, however, are located approximately 150 feet from the folder's primary work area and are downstairs. Restrooms are well supplied with soap, paper towels, and toilet paper.

4. Procedures for finding additional work

   There are no time intervals during the work day when the folder can complete all work available. Thus, procedures for finding additional work are unnecessary.

5. Unexpected social interactions

   The folder is not expected to greet new acquaintances and is not required to interact with the public.

C. Language skills required

1. The supervisor of the folding job limits all commands to the primarily one component verbal directions delineated in the Information related to supervision section of this inventory.

2. Listed below are selected nouns, verbs, adjectives/adverbs, and prepositions that are used frequently by both supervisors and folders employed at the Media Center:

Selected Noun-Pronoun Inventory

brochure
sealor
photo page
printed page
table
chair
box (es)
folding room
lunch room
time block
time card
work area
coke machine
mine
lunch
folded brochure
unfolded brochure
sealed brochure
unsealed brochure
handful
rows
crease
binding
each
work day
supervisor
folder
yours

Selected Verb Inventory

begin
finish
seal
pile
fold
bring
press
give me
get
put
hurry
punch
enter
exit
walk
take
clean up
returns
turn on/off
get
put away
take out
go get
set
sit
stand
help
remember
carry
pile
stack
check
close

Selected Adjective/Adverb Inventory

big
small
empty
full
all
home
red
small
light
fast
slow
working
not working
white

Selected Preposition Inventory

in
beside
next to
for
from
at
out
around
over
near
out

3. In addition to the use of the above inventories, the folder should be able to demonstrate expressive "yes" and "no" appropriately.

D. Functional academic skills required

Delineated below are the functional academic skills deemed crucial to the folding job by both the assessor and the work/study supervisor (S_1):

Functional reading skills required

1. The folder must be able to functionally read at least the following words when they are presented in a variety of settings and in various types of letters and forms (e.g., handprinted, boldprinted, capital letter print, small letter print).

Selected reading inventory

a) The folder should be able to read his/her name.

b) The folder should be able to functionally read the following words:

off/on
out of order
do not enter
enter
exit
trash
storage
men/women
public/private
coke

2. The functional reading of work schedules is not required.

3. The functional reading of posted notices is not required.

Functional math skills required

1. The folder must have the skills necessary to rationally count from 1-4 objects. These objects include folded brochures, unfolded brochures, seals and boxes. For example, the folder is required to set up 4 piles of unfolded brochures at his/her work area before folding commences.

2. The folder is not required to add or subtract objects.

3. Clock reading and money management math skills are described in the Supportive skills section of the inventory.

Functional writing skills

1. The folder must have the skills necessary to print or write his first and last name. The skills should be performed across types of paper, types of writing instruments and in various physical settings. For example, each folder must sign for his/her check periodically and may be asked to do this in any room of the Media Center, with any type of writing instrument available.

2. The folder is not required to have other writing skills beyond those involved in name writing. However, as will be described in the Supportive skills section of the inventory, the folder is required to obtain a Social Security card. Thus, an optional handwriting skill might include the ability to fill out the application form required to secure a Social Security card. Selected items on such an application are delineated below:

First Middle Last
Print full name ____________________

City County State
Place of birth ____________________

Mothers name ____________________

Fathers name ____________________

Number and Street City State ZIP

Your address ______________________________

Today's Date ______________________

Telephone Number ____________________

Date of Birth ____________________

Your age ______________________

Your sex ________ Male ________ Female

Your color ________ White ________ Negro ________ Other

Sign here ______________________________

Essential categorization and discrimination skills

Several of the categorization and discrimination skills deemed critical to job performance are presented below. This folder should display the skills necessary to discriminate among and/or categorize the following:

a) Variations of brochures, e.g., complete, incomplete, folded, unfolded, damaged, undamaged, sealed, unsealed;

b) Variations of time card, e.g., own name card, non-own name card;

c) Variations of work areas, e.g., supervisors area, own area, other workers' areas;

d) Variations of boxes containing brochures, e.g., boxes packed with folded brochures, boxes packed with unfolded brochures;

e) Variations of rooms at the work site, e.g., folding/collating room, lunch room, restroom, other rooms.

Short term memory requirements

In most daily work situations long time periods between the time a direction is given and an action is performed are not needed. Thus, there are few difficult delayed memory requirements of significance.

Machine and tool skills required

Besides the optional use of vending machines, the folder is not required to operate any tools and/or machinery for the successful performance of the job.

Hygiene skills required

Folders in a Media Center should adhere to reasonable standards of grooming and body care. The following standards are frequently exemplified by fellow workers:

1. Workers are expected to bathe and use deodorant daily.

2. Workers are expected to brush their teeth and use mouthwash daily.

3. Workers are expected to comb their hair at appropriate times during the work day, e.g., during lunch break.

4. Workers are expected to dress casually but neatly in clothes similar to those described in the Information related to fellow workers section of this inventory.

III. Supportive skills and other information required

Suggested below are selected transportation, work preparation, money management, and time-telling skills required for independent functioning as a folder. There are some situations when persons other than the severely handicapped worker will assume the responsibility for all or part of these functions. Hopefully, potential folders will receive instruction in supportive job skills to the same degree he/she is taught actual job skills. It should be noted that several folders work at the Media Center on the same schedule and travel to and from the same school. Thus, transportation and time-telling skills are frequently performed in small groups.

A. Transportation skills required

1. The folder will be traveling from school to the job site each time he/she goes to work. Upon completion of work the folder will return to his/her school. The distance from Badger School to UW Photo Media Center is approximately 6.5 miles. The distance from Gompers School to the Center is 14 miles.

2. The UW Photo Media Center and Gompers School are located on the same public bus line. Unfortunately, Badger School is not located near a public bus line and is not within walking distance of the Center. Thus, Badger School students traveling to work at this job site are driven there by school personnel. Since folders from Gompers School have access to public bus travel, they are required to possess the following selected transportation skills:

   a) The folder should have the skills necessary to walk to and from bus stops both near school and in the downtown area (a significant subskill in this area is the ability to cross intersecting streets having 4 or less lanes).

   b) The folder should have those orientation and reading skills necessary for locating appropriate buses and bus stops.

c) The folder should have the skills necessary to board, ride, and pay for public bus transportation to and from the work site and school.

3. Unfortunately there are no alternative transportation methods available to workers from either Gompers School or Badger School. The cost of a public taxi would be too expensive. In fact, the cab cost would probably exceed the folder's earnings on a typical work day.

B. Skills related to work preparation

1.

a) While at work both male and female folders are required to wear and provide at their own expense, casual clothes similar to those described in the Information related to fellow workers section of the current inventory. For example, male folders might wear corduroy trousers, a long sleeved sport shirt, and leather shoes. A female folder could wear knit slacks, an informal blouse, and flat leather shoes.

b) In terms of clothing requirements necessary to get to and from work, the folder must possess the skills necessary to match his outer garment needs with varying weather conditions and temperatures. For example, during the winter months the folder must wear heavy shoes or boots, a warm coat, gloves, and a hat.

c) Laundry skills required of the folder are quite extensive as work uniforms are not provided. Thus, the following laundry related skills are necessary:

1) The folder should have the skills necessary to wash, dry, and iron slacks, shirts or blouses.

2) The folder should have the skills necessary to wash and dry required undergarments.

3) The folder should have the skills necessary to polish leather shoes.

There are no formal color combination skills required of the folder. However, in an effort to minimize differences between handicapped and non-handicapped workers, it would be in the best interest of the folder if the following matching/combining skills were manifested:

1) The folder should select to wear clothing items that are not of unusual or garish colors, e.g., orange, bright pink or crimson.

2) The folder should wear slacks/shirt combinations where either the slacks or the shirt is of a solid color. For instance, the worker should not choose to wear striped slacks with a plaid shirt.

2.

a) The part time folding job provides the worker with a daily 30-minute lunch break.

b) There are no facilities within the Center from which a worker can obtain sandwiches, milk, or coffee. In addition, the folder does not have time during his 30-minute break to take lunch in a nearby restaurant. Thus, the folder has few lunch options available. He/she must bring a sack lunch. Soft drinks, if desired, may be secured from the vending machine in the lunch room area for $.25 in coin.

c) The folder should have the skills necessary to prepare a sack lunch.

d) The folder is discouraged from bringing a lunch that requires refrigeration or heating, since neither of these facilities are available at the Center.

C. Basic money management skills required

In most cases, a severely handicapped person hired as a part-time folder would not rely on his/her wages for total support. The folder would have additional income from sources such as Social Security. However, the average weekly gross payment for a folder is approximately $21.00. Of this $21.00 earned, the workers take home pay is approximately $17.00.

1. Delineated below is a listing of suggested ways the severely handicapped folder could use his/her income:

a) General savings;

b) Saving for specific item(s) such as a vacation or a bicycle;

c) For purchases such as clothing and grooming items;

d) For unnecessary or luxury purchases such as additional food, liquor, or cigarettes;

e) For payment toward time purchases such as a radio or a television;

f) For payment for recreational activities such as movies, ice skating, or camping.

Hopefully, with assistance from a teacher or parent, the folder will establish a budget plan under which portions of his/her income will be divided to allow payment for several of the items listed above.

2. The folder will need to bring money to the job for lunch purposes, for emergency phone calls, and possibly to provide for an emergency taxi cab ride:

telephone	$ .20
drink	.25
emergency cab	1.10
total required daily	$1.55

   Thus, the folder would need functional money use skills of up to $1.55 and he/she would be required to perform these skills independently.

3. The severely handicapped folder is paid by check on a monthly basis.

4. Hopefully, the folder will cash his check at a bank in the vicinity of his home. Several banks in the Madison area provide individualized service to handicapped patrons. Specifically, the folder could use the following special services:

   a) A predetermined amount of savings and cash received can be negotiated on a monthly basis by the folder, his/her guardian, and special service employees of the bank;

   b) The folder could ask for assistance from special service employees each time he/she enters the bank;

   c) The special service employees could be required in advance to notify the group home supervisor or parents in the event of a significant savings withdrawal or application for a loan.

5. Although the degree of independence in public stores is not related to successful performance as a folder, store usage skills should be assessed as part of the job inventory. The assessment of store skills will provide parents and teachers with a framework concerning the number and types of purchases the folder can make independently. Specifically we would suggest the following:

   a) The assessor should determine the types of stores the severely handicapped worker can function in. Perhaps he/she is competent in a grocery store, but needs additional skills in the use of clothing stores.

   b) The assessor should determine the amounts of money the worker can functionally use in a store. The worker might require a predetermined list and an exact or near exact amount of money before he/she is able to purchase items.

c) The assessor should determine the folder's level of independent functioning in a store. The worker could be most competent when he/she is with a supervisory person or with other handicapped associates.

Obviously an assessment of this type is specific to the worker in question. However, if this important area of the inventory is overlooked, the worker could become frustrated concerning his/her purchasing power and this in effect could have negative repercussions directly related to work performance.

D. Time telling and time judgment skills required

1. The severely handicapped folder will need time telling skills necessary to read clocks and watches accurately at 30 minute intervals. Although the folder must commence work, take his break and finish work precisely to the minute, all of these activities have been structured so that they will occur on the hour and/or the half hour. Thus, departure from school time is at 9:30 a.m., work arrival is at 10:00 a.m., break commencement is at 12:00 noon, break completion is at 12:30 p.m., departure from work is at 2:00 p.m., and arrival time back at school is at 2:30 p.m. In addition to clock and watch reading skills, the folder must be able to perform his "punch in" and "punch out" activities independently.

2. In addition to the above clock and watch reading skills, the folder must be able to match critical occurrences related to work with those time periods mentioned. For example, at 9:30 a.m., and that he/she should proceed to the appropriate bus stop.

3. The worker will not need to pair or match any non-job events with specific time periods on the clock. Since break activities are monitored by one of the supervisors, the folder need not be "watching the clock" during the noon hour.

4. There are several alternative time telling strategies available to a folder who does not have skills 1-4 listed above:

   a) The worker's daily activities could be monitored by a fellow folder who does have these skills;

   b) The worker's daily activities could be monitored by a community based teacher;

   c) The folder could wear a specially designed watch, programmed to buzz at critical periods throughout the work day.

E. Health code requirements

As mentioned previously, the final two components of the job inventory, Health code requirements, and Informed consent and legal requirements, are information sections that do not pertain to specific skills required of a severely handicapped worker. However, these areas are essential to a comprehensive inventory and those items specific to the folding job are listed below:

1. A physical examination is not required of employees at the UW Photo Media Center. However, public school personnel should insist that all potential handicapped workers receive a complete physical before these students begin competitive job training.

2. There are no vaccines required of employees at the Center. Public school personnel should however, contact a potential worker's physician to assure that he/she has received vaccines deemed necessary.

F. Informed consent and legal requirements

1. All workers under age 18 need a work permit in the state of Wisconsin. The steps required of a severely handicapped worker in procurring a work permit are described below:

    a) The potential worker or his/her agent must fill out a work permit application. The form requires information similar to that depicted in section D: Functional academic skills required, for completing a Social Security application.

    b) The potential worker, if under 18 years of age, must have the application signed by his/her parent.

    c) The potential worker must return the application, in person, to a local high school or other designated facility.

    d) The potential worker must obtain a Social Security card prior to his application for a work permit.

2. All workers, unless exempted by federal regulations, must obtain or make application for a Social Security card prior to beginning work. The steps required for obtaining a Social Security card are listed below:

    a) The potential worker or his/her agent must fill out a Social Security card application. Portions of this application form are described in section D: Functional academic skills required.

    b) The potential worker or his agent must return the application form to a local Social Security office.

    c) The potential worker should be informed that his Social Security card will be sent to him/her via U.S. mail and will arrive approximately four weeks after the application is received.

3. Guardianship laws designed to protect the rights of severely handicapped persons vary from state to state. In Wisconsin an 18 year old severely handicapped person has all rights of an adult unless other arrangements are made in a court of law. Some Wisconsin parents of severely handicapped persons have attempted to protect their sons/daughters by asking the courts to allow them to maintain partial guardianship. Thus, it is in the best interest of all persons involved in the work placement to contact parents or legal guardians before a severely handicapped student accepts employment.

4. The folder working for the UW Media Center is protected in the event of injury by Workmen's Compensation during working hours.

5. The Director of the Media Center does not require employee bonding.

6. Employees of the Media Center are not required to attend an orientation meeting.

7. As mentioned previously, the question concerning whether or not the severely handicapped citizen indeed does want the job offered is crucial. For far too many years "helpful others" have predetermined what the severely handicapped citizen will and will not do. In an attempt to assess whether a worker wanted the folding job, information related to the following was secured:

    a) The worker's verbal responses to questions about work as a folder were recorded.

    b) The worker's performance across work-related domains discussed in the current inventory was studied.

    c) The worker's performance as an employed folder and his/her verbal responses to questions about work as an employed folder were analyzed.

APPENDIX A

TEACHING SEVERELY HANDICAPPED STUDENTS TO FUNCTION AS DISHWASHERS IN SIMULATED AND NATURAL WORK SETTINGS[10]

by

RICHARD SCHWARTZ[11]

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[10] This paper was submitted in a more complete form to the Graduate School of the University of Wisconsin-Madison in partial fulfillment of the degree, Masters of Science, by Mr. Richard Schwartz, August, 1976.

[11] The authors would like to thank Mr. Schwartz for allowing the inclusion of a major portion of his master's thesis in order to provide the reader with a demonstration of an actual application of the job skills inventory strategy.

Supermarket Shopping: Teaching Severely Handicapped Students to Generate a Shopping List and Make Purchases Functionally Linked with Meal Preparation[1]

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Ian Pumpian and Ken Belmore[2]

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[2] The authors would like to acknowledge the assistance of Alan Pearlman in designing and implementing the video portions of this program.

TABLE OF CONTENTS

INTRODUCTION 222

DESCRIPTION OF PROSTHETIC SHOPPING AID 225

TASK ANALYSIS 230

METHODOLOGY

Students 238
Setting 242
Materials 242
Instructional Program 242
Correction Procedure 258

RESULTS 263
Table 2: Number of Trials to Criterion 264

DISCUSSION 266

APPENDIX A: SAMPLE DATA SHEET FOR PHASE I 267
APPENDIX B: SAMPLE DATA SHEET FOR PHASES II, III & IV 268
APPENDIX C: SAMPLE DATA SHEET FOR PHASE VIII 269
APPENDIX D: SAMPLE DATA SHEET FOR PHASE IX 270

INTRODUCTION

As severely handicapped individuals gain more access to natural community environments they will need to acquire many of the practical skills of everyday living. A complete inventory of these skills would be of formidable length and disheartening complexity. A severely handicapped individual can not be taught "all she/he would need to know to survive in the community" in a short time. But such a grandiose goal is not our initial objective.

Initial objectives may involve prosthetic aids and simplified procedures so that severely handicapped individuals can make increasingly closer approximations to totally independent functioning. But alternatives to the dichotomy of independence vs. dependence will be difficult to find if performing the task and interacting with the community is postponed until the severely handicapped student has acquired all the prerequisite skills for independent performance.

This paper details an instructional program, developed and implemented within the Madison, WI Public Schools, designed to teach severely handicapped students the skills necessary to shop at a supermarket.[3] The program represents an attempt to provide six severely handicapped students with a complex independent community living skill by utilizing existing skill repertoires. Therefore, the process of grocery shopping was accommodated to the students, rather than requiring the students to shop in a highly sophisticated manner. As such it is only an approximation of grocery shopping. However, it is an approximation which allows the students to generate a shopping list based upon meal planning considerations and their own preferences and to independently purchase the items. Shopping skills, then, were not taught in isolation. They were taught to occur within the context of meal preparation. This stressed increasing the student's skill in independent meal preparation and the functional aspect of grocery shopping; that is, replenishing consumed food items.

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[3] The words supermarket and grocery store are used interchangeably throughout the text.

As mentioned above, the task was adapted to the students. This statement is based on two major elements of the program. First, adhesive labels were attached to all food items kept in a cabinet or refrigerator in a kitchen facility at school. The students were taught to remove the label from a consumed item and attach it to either the cabinet or refrigerator door. This generated a grocery shopping list while eliminating the need for writing and reading skills. Second, the students were taught to match the items on the refrigerator or cabinet door with those listed on a grocery shopping card (see following section for a complete description of the prosthetic shopping aid) by making a slash mark next to the item on the card which corresponded to the item on the doors. Finally the prosthetic aid made it possible for the student to know the total amount of money to the nearest dollar necessary for purchasing the listed items. The grocery shopping card allowed the students to determine the amount of money they would need utilizing only rational counting and numeral recognition skills.[4]

The card also served as a match-to-sample check list enabling the students to locate the various food items at a supermarket without needing to rely on sophisticated reading skills. This program represents an attempt by the writers to extend the independent living skills of a group of severely handicapped students. This was done by utilizing existing skills and other skills that could be acquired rapidly. This required that a cluster of skills be reduced to their simplest form while retaining functional utility.

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[4] Initially a simpler method was employed that eliminated the need for rational counting and numeral recognition. The students were eventually transitioned to the method summarized above in order to eliminate the need for adult supervision in determining the amount of money required for particular purchases.

DESCRIPTION OF PROSTHETIC SHOPPING AID
(Grocery Shopping Card)

Functions of prosthetic shopping aid

The prosthetic shopping aid (also referred to as a grocery shopping card in the text) was developed for secondary level severely handicapped students who did not demonstrate the rudimentary money, addition and reading skills frequently associated with grocery shopping in a large supermarket. The aid permitted these students to:

(a) generate a shopping list based on actual need;

(b) determine the approximate total cost of the items on the shopping list;

(c) make grocery purchases totaling up to $5.00.

Without the prosthetic shopping aid these secondary level severely handicapped students would need to develop proficiency in a cluster of related math and reading skills before they could shop independently in any large supermarket. Thus the aid contributed to each student's "shopping readiness" by reducing the number of prerequisite skills.

Determination of items on prosthetic shopping aid

The items listed on each card were selected on the basis of the student's individual preferences. Thus, each student's shopping aid was composed of his/her preferred food items. The total number of items on the card was arbitrarily determined by the student and teacher to be approximately 20. Obviously, the number of items on the list could be readily increased after a student mastered supermarket shopping with the initial selection. The length of the program and the cost of shopping in real situations also influenced the total number of items listed.

Another significant factor was that each food item listed was appropriate to breakfast, lunch, or both. Breakfast and lunch are relatively quick, easy and inexpensive to prepare. They are meals that severely handicapped students are often required to prepare, whether they live with their parents or in a group home. In addition, selection of breakfast and lunch food was being taught to these same students as part of a home living program.

Design of prosthetic shopping aid

Figure 1 is a diagram of the prosthetic shopping aid with the primary components labeled. Several characteristics of the aid should be noted.

1. Depending upon the needs of the individual student, food items were depicted (a) pictorially; (b) in written form; or (c) both pictorially and in written form.
2. Blank spaces were provided at the bottom of the card so that each shopping list could be expanded when appropriate.
3. The selections on the card do not depict the size or brand names. Students were taught to select the smallest size of each food, or to select a size or package that matched or closely resembled one used during instruction. For example, during instruction soda pop was always purchased in six-pack cans.
4. Each self-adhesive white and permanent black square on the card represents a 50 cent cost interval. Thus, a quart of milk costing 69 cents has two white squares beside the representation of milk and ketchup, costing 39 cents, has one.
5. There are two ways to use the prosthetic shopping aid to determine the amount of money necessary for grocery purchases.

a) The removable self adhesive white square(s) beside a selected item can be transferred, progressing from left to right, to the black square(s) on the money gauge. After following this procedure for each food item, the student can determine approximate total cost by labelling the numeral directly below the last white square on money gauge.

b) The second procedure eliminates the need to recognize numerals and rationally count. In this procedure a parent, teacher, etc., would count out the appropriate amount of money, give it to the student and draw a line after the black square representing that amount. As the student selects items, she/he transfers the self-adhesive white squares to the permanent black squares. The student stops selecting items when the white squares fill in all the black squares to the left of the line.

6. Each selection box on the card is laminated. Thus, items to be purchased can be checked above the line in the selection box.

7. The arrangement of items on the grocery shopping card corresponds to their arrangement in the stores of a large Wisconsin-Illinois supermarket chain. Thus, if a student secures food items from left to right in one of these stores, he/she will encounter hot dogs first, cheese next, eggs next, etc.

8. The shopping card is a compact three ring binder which can be opened and placed in the baby seat section of a shopping cart. This eliminates the need for the student to carry the shopping aid while pushing a cart.

The prosthetic shopping aid represents a convenient reusable device that can enable a severely handicapped student to make grocery purchases in an independent, dignified manner. It can be used to approximate the cost of grocery purchases and consequently the need to terminate shopping. It simplifies complex scanning skills by listing items according to the store's arrangement. It also eliminates the need to teach elaborate memory strategies by utilizing pictures of food. However, the functional applicability of the shopping aid can only be determined by empirically verifying the utility of the device in a shopping program. The following program was implemented to establish the usefulness of the prosthetic shopping aid as an initial step in teaching severely handicapped secondary students who lacked complex reading and money skills to shop independently.

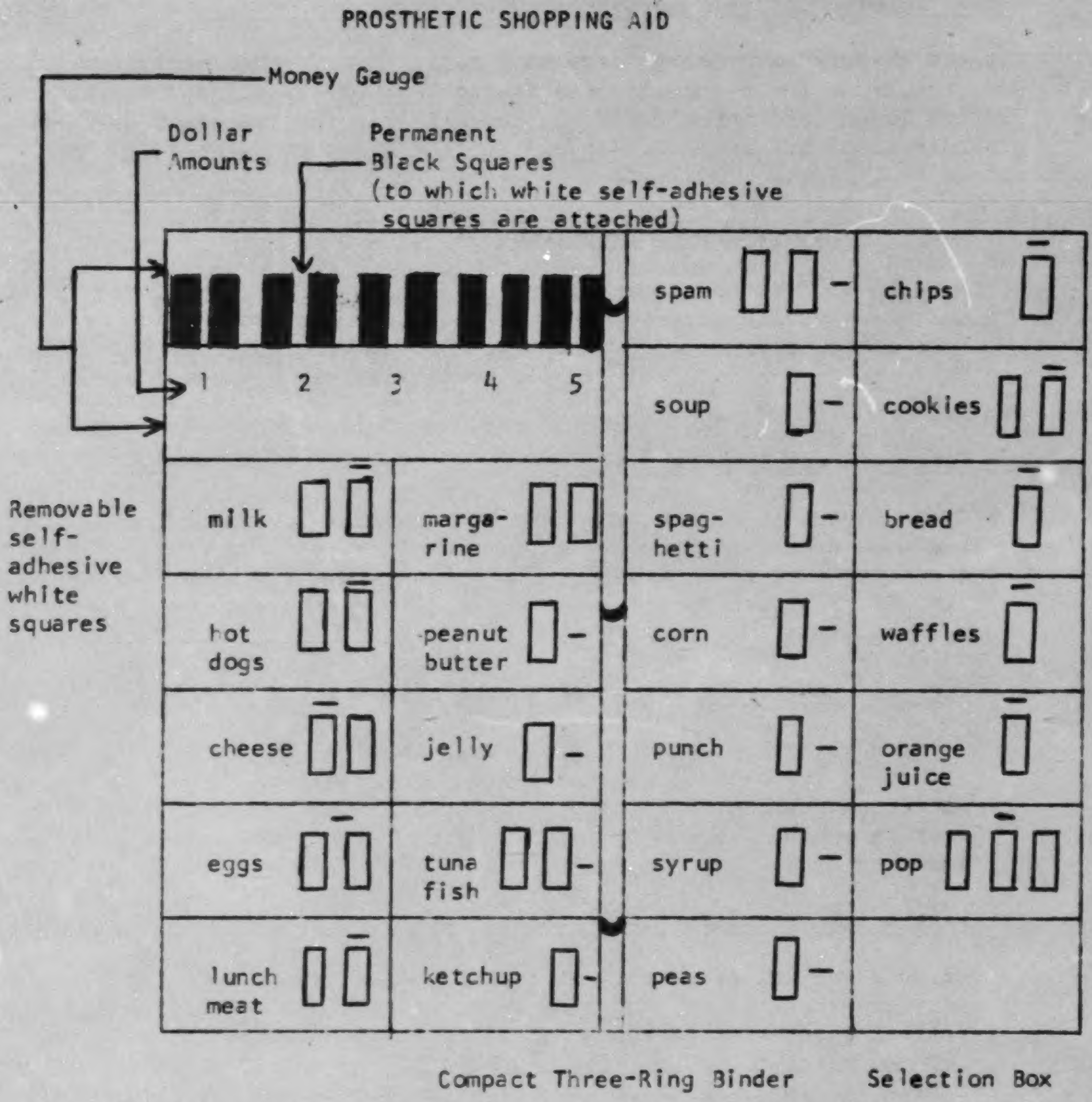

Figure 1. This figure schematically depicts the essential characteristics of the prosthetic shopping aid.

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[5] Depending upon individual food preferences, these items varied for different students.

TASK ANALYSIS

Phase I: Discriminating breakfast foods from lunch foods

Given a variety of grocery items on a table (i.e., some lunch foods, some breakfast foods and some foods which can be classified as breakfast or lunch) and verbal cue, "Do you eat this for breakfast or lunch?" S should label the meal with which the food items are generally associated.[6]

Part 1: Labeling breakfast foods

Given a variety of grocery items on a table (i.e., some lunch items and some breakfast items) T will randomly select one of the breakfast items, show it to S, and say, "Do you want this for breakfast or lunch?" S should say "...for breakfast," in response to each item selected by T.

Part 2: Labeling lunch foods

Given a variety of grocery items on a table (i.e., some lunch items and some breakfast items) T will randomly select one of the lunch items, show it to S, and say, "Do you eat this for breakfast or lunch?" S should say, "...for lunch," in response to each item selected by T.

Part 3: Labeling items which can be classified as breakfast and lunch

Given a variety of grocery items on a table which can be classified as both a lunch and a breakfast food (e.g., milk), T will randomly select an item, show it to S, and say, "Do you eat this for breakfast or lunch?" S should say, "...both," in response to the items selected by T.

Part 4: Discriminating breakfast foods from lunch foods

Given a variety of grocery items on a table (i.e., some lunch foods, some breakfast foods, and some foods that can be classified as breakfast or lunch) T will randomly select one item, show it to S, and say, "Do you eat this for breakfast or lunch?" S should say, "...for breakfast," "...for lunch," or "...both," as indicated by the item selected by T.

Phase II: Selecting food items needed for one breakfast or lunch

Given a variety of grocery items on a table (i.e., some lunch foods, some breakfast foods and some foods which can be classified as breakfast or lunch) and the verbal cue, "Get all the items you need to make one breakfast (or lunch; randomly interchanged)." S should be able to select all the food items needed for one breakfast or lunch.

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[6] Food items used throughout the program were based upon S preference determined by T observations and parent input.

[7] One breakfast was defined as a beverage and a main course. One lunch was defined as a beverage, a main course and, if desired, a dessert.

Part 1: Selecting food items for one breakfast

Given a variety of grocery items on a table (i.e., some breakfast foods, some lunch foods and some breakfast and/or lunch items) and the cue presented by T, "Get all the foods you need to make only one breakfast for yourself." S should select the food items necessary to complete one breakfast.

Part 2: Selecting food items for one lunch

Given a variety of grocery items on a table (i.e., some breakfast foods and some lunch foods and some breakfast and/or lunch foods) and the cue presented by T, "Get all the foods you need to make only one lunch for yourself." S should select the food items necessary to complete one lunch.

Part 3: Selecting food items for one breakfast or lunch

Given a variety of grocery items on a table (i.e., some breakfast foods, some lunch foods, and some breakfast and/or lunch foods) and the cue presented by T, "Get all the foods you need to make only one breakfast (or lunch; randomly interchanged) for yourself." S should select the food items necessary to complete one breakfast (or lunch).

Phase III: Selecting food items for one breakfast or lunch from a refrigerator and/or cabinet

A number of preferred grocery foods are arranged in a refrigerator and kitchen cabinet. Pictures of each item are taped on the shelves directly in front of the foods. T says to S, "Get all the foods you need to make only one breakfast (or lunch; randomly interchanged)." S should:

a) place the items needed to complete one breakfast (or lunch) on a counter;
b) label all the items selected when asked, "What are you having for breakfast (or lunch)?";
c) return the items to their respective shelves when told, "Put all the foods back."

Part 1: Selecting food items for one breakfast from a refrigerator and/or cabinet

A number of preferred grocery foods are arranged in a refrigerator and kitchen cabinet. Pictures of each item are taped on the shelves directly in front of the foods. T says to S, "Get all the foods you need to make only one breakfast." S should:

a) Place the items needed to complete one breakfast on a counter;

b) label all the items selected when asked, 'What are you having for breakfast?';
c) return the items to their respective shelves when told, "Put all the foods back.'

Part 2. Selecting food items for one lunch from a refrigerator and/or cabinet.

A number of preferred grocery foods are arranged in a refrigerator and kitchen cabinet. Pictures of each item are taped on the shelves directly in front of the foods. T says to S, 'Get all the foods you need to make only one lunch.' S should:

a) place the items needed to complete one lunch on a counter;
b) label all the items selected when asked, 'What are you having for breakfast?';
c) return the items to their respective shelves when told, 'Put all the foods back'.

Part 3. Selecting food items for one breakfast or lunch from a refrigerator and/or cabinet

A number of preferred grocery foods are arranged in a refrigerator and kitchen cabinet. Pictures of each item are taped on the shelves directly in front of the foods. T says to S, 'Get all the foods you need to make only one breakfast (or lunch: randomly interchanged)'. S should:

a) place the items needed to complete one breakfast or lunch on a counter;
b) label all the items selected when asked, 'What are you having for breakfast?';
c) return the items to their respective shelves when told, 'Put all the foods back'.

Phase IV. Transferring pictures of consumed food items to refrigerator and/or cabinet door

A number of preferred grocery foods are arranged in a refrigerator and kitchen cabinet. Pictures of each item are taped on the shelves directly in front of the foods. T says to S, 'Get all the food you need to make only one breakfast (or lunch; randomly interchanged).' S should:

a) place the items needed to complete one breakfast (or lunch) on a counter;
b) transfer an item's picture from the refrigerator and/or cupboard shelf to the door when the food selected will require replacement;
c) label all the items selected for the meal;
d) dispose of consumed items;
e) return remaining items to their respective shelves;
f) label items which need to be purchased at a grocery store (i.e., transferred pictures) when asked, 'What do you need to buy when you go to the grocery store?'

Part 1: Transferring pictures of consumed one-serving items (e.g., canned soup) to refrigerator and/or cabinet door

A number of preferred grocery foods are arranged in a refrigerator and kitchen cabinet. Pictures of each item are taped on the shelves directly in front of the foods. T says to S, "Get all the foods you need to make only one breakfast (or lunch; randomly interchanged)." S should:

a) place the items needed to complete one breakfast (or lunch) on a counter;
b) immediately upon selecting a one-serving item (e.g., canned soup) transfer the item's picture from the refrigerator and/or cupboard shelf to the door;
c) label all the items selected for the meal;
d) dispose of consumed items;
e) return remaining items to their respective shelves;
f) label items which need to be purchases at a grocery store (i.e., transferred pictures) when asked, "What do you need to buy when you go to the grocery story?"

Part 2: Transferring pictures of consumed bulk-food items[8] (e.g., variety-packed cereal) to refrigerator and/or cabinet door

A number of preferred grocery foods are arranged in a refrigerator and kitchen cabinet. Pictures of each item are taped on the shelves directly in front of the foods. T says to S, "Get all the foods you need to make only one breakfast (or lunch; randomly interchanged)." S should:

a) place the items needed to complete one breakfast (or lunch) on a counter;
b) upon selecting a bulk-food item (e.g., variety-pack cereal) transfer the item's picture from the refrigerator and/or cupboard shelf to the door when there are only two items remaining;
c) label all the items selected for the meal;
d) dispose empty food item containers;
e) return remaining items to their respective shelves;
f) label items which need to be purchased at a grocery store (i.e., transferred pictures) when asked, "What do you need to buy when you go to the grocery store?"

Part 3: Transferring pictures of consumed judgment items (e.g., peanut butter) to refrigerator and/or cabinet door

A number of preferred grocery foods are arranged in a refrigerator and kitchen cabinet. Pictures of each item are taped on the shelves directly in front of the foods. T says to S, "Get all the foods you need for one breakfast (or lunch; randomly interchanged)." S should:

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[8] A bulk-food item is one that contains several separately packaged one serving items together such as variety pack cereal or a six pack of soda pop.

a) place the items needed to complete one breakfast (or lunch) on a counter;
b) label all the items selected for the meal;
c) dispose of consumed items;
d) return remaining items to their respective shelves;
e) upon returning a judgment item (e.g., peanut butter) transfer the item's picture from the refrigerator and/or cabinet shelf to the door when the quantity remaining in the container falls below the line[9] drawn on the jar and no other container is on the shelf;
f) label items which need to be purchased at a grocery store (i.e., transferred pictures) when asked, "What do you need to buy when you go to the grocery store?"

Phase V: Teaching the function and components of a supermarket

S acquires the skills necessary to:

a) label the "purpose" for going to a supermarket (i.e., purchase groceries);
b) determine that a shopping list and money are needed to purchase groceries at a supermarket;
c) discriminate and label various components of a supermarket (e.g., "In/Out" door, shopping carts, food aisles, dairy case, check-out lanes, etc.) as they appear on a video tape[10] of an actual store;
d) stop a video tape of the food aisles of a supermarket when food items appear on a television monitor which correspond to food items on a shopping list.

Part 1: Teaching the function of a supermarket

S acquires the skills necessary to label a grocery store[11] as a place where one goes to buy food.

Part 2: Teaching the need for a shopping list and money to make purchases

S acquires the skills necessary to:

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[9] A black line was drawn at a level where approximately one-fourth of the contents remained in the container.

[10] Video tapes were used to ease the transition from the classroom to the supermarket and to add a visual referrent for classroom discussions of a grocery store. In addition, the tapes eliminated the need to orient S's in a detailed way to the components of a store when actual trips to the supermarket were made. The authors would like to stress, though, that the program can easily be implemented without the use of video tapes. Photographs of the components of a supermarket to teach S's to discriminate the actual component could precede purchasing trips.

[11] T used the words supermarket and grocery store interchangeably throughout the implementation of the program.

a) label a shopping list as necessary for purchasing groceries at a supermarket;
b) label money as necessary for purchasing groceries at a supermarket.

Part 3: Discriminating the components of a supermarket

S acquires the skills necessary to discriminate and label various components of a supermarket (e.g., "In/Out" doors, shopping carts, food aisles, dairy case, check-out lanes, etc.) as they appear on a video tape of an actual store.

Part 4: Stop a video tape at items on a shopping list

S acquires the skills necessary to stop a video tape of the food aisles of a supermarket when food items appear on a television monitor which correspond to food items on a shopping list.

Phase VI: Generating a shopping list and determining money for grocery purchases

S acquires the skills necessary to:

a) check off food items with a grease pencil on his/her grocery shopping card that have been previously transferred to a refrigerator and/or cabinet door;
b) determine the amount of money needed to purchase the food items checked off by utilizing the money calculating components of the card.

Part 1: Generating a shopping list

Given various pictures of food items that have been previously transferred by S to a refrigerator and/or cabinet door, S locates the same pictured items on his/her grocery shopping card and makes an "X" next to the item on the card.

Part 2: Determining money for grocery purchases[12]

A. T draws a line to the right of the amount in the money-gauge[13] of the grocery shopping card needed to purchase the items S has checked off. S takes the money and states that the line indicates that she/he has enough to buy the items on the card.

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[12] Two different summaries (A & B) of the skills in Part 2 are provided for the reader. Section A describes the skills taught throughout most of this program (data reported for Phase VI, Part 2 are based upon Section A). Section B was begun at the end of the school year. Section A teaches the students how to make purchases in a semi-independent way (T must always determine amount of money), while Section B allows the student to use a supermarket in a totally independent fashion (but requires rudimentary rational counting and numeral recognition skills).

[13] S places the rectangular strips on the money-gauge from left to right.

B. Given a grocery shopping card with various food items which need to be purchased previously marked, S transfer the moveable rectangular strips next to each marked food item to the money-gauge at the top of the card. S then determines the amount of money needed to purchase the marked food items by:

a) labeling the numeral printed under the last rectangular strip transferred to the money-gauge;
b) counting out one dollar bills and stopping at the numeral labeled.

Phase VII: Purchasing food items at an actual supermarket[14]

S acquires the skills necessary to secure food items, check out at check out counter, and pay for items selected.

Part 1: Securing food items

Upon arriving at a community supermarket S:

a) determines the appropriate door to enter;
b) gets a shopping cart; and
c) secures all items checked-off on grocery shopping card.

Part 2: Check-out sequence

Upon determining that all food items checked off on the grocery shopping card have been secured S:

a) proceeds to the closest open check-out lane and waits in line;
b) quickly places all items on the counter at appropriate time;
c) pushes cart out of lane after placing the items on the counter, and returns to pay.

Part 3: Payment sequence

Upon cue from the store cashier (checker) S:

a) gives cashier the money previously calculated through the money-gauge on the grocery shopping card;
b) waits for change and receipt;
c) moves to end of check-out lane away from other customers, and puts change and receipt in purse, wallet or pocket;
d) picks up groceries and leaves through appropriate door.

Phase VIII: Replacing food items purchased at a supermarket and pictures corresponding to those items to the appropriate refrigerator or cabinet shelf.

S acquires the skills necessary to replace the food items purchased at the supermarket on the appropriate shelves of the refrigerator or cabinet and to replace the pictures corresponding to those items.

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[14] The store used for the purchasing phase of the program was a full-sized supermarket which was part of a Wisconsin-Illinois chain.

Part 1: Putting groceries/pictures on appropriate shelves

Upon arriving home from the supermarket S takes each item purchased from the store and places it on appropriate cabinet or refrigerator shelf. S then takes the pictures from the cabinet or refrigerator door corresponding to the purchased foods and places the picture on the shelf in front of the item.

Phase IX: Erasing checked-off food items and replacing moveable squares to appropriate areas of the grocery shopping card.

S acquires the skills necessary to remove the self-adhesive squares from the money gauge and replace them next to the food items.

Part 1: Replacing the squares and erasing checked-off food items

S takes the self-adhesive squares from money-gauge at the top of the grocery shopping card and places them next to the empty spaces adjacent to the checked-off food items. S then takes a damp cloth and erases the check marks on the items that were previously purchased at the supermarket.

METHODOLOGY

Students (S's)

Six students were involved in this study. All six students were classified as functioning within the severely handicapped range. The students were enrolled in a self-contained classroom for the severely handicapped within the Madison, WI Public Schools. A detailed description of each student is provided below.

S_1

SEX: Female

C.A. AS OF JANUARY, 1976: 15 years

I.Q.: Stanford Binet 40 (M.A. 4-7)
PPVT (M.A. 4-8)

LEVEL OF RETARDATION: Severely retarded

MEDICAL DIAGNOSIS: XXX Chromosomal pattern with mental deficiency.
Schizophrenic

EDUCATIONAL SKILLS DESCRIPTION: Low functioning, limited reading skills (15 functional community sight words)
Limited math/money skills (all coin recognition, counting skills to 20)
Unintelligible speech.

PLACEMENT HISTORY:
NATURAL HOME: In natural home since birth - 8/60
BOARDING HOME: Mendota State Hospital 3/69 - 2/70
SCHOOL: Madison Public Schools 2/68 - Present

S_2

SEX: Male

C.A. AS OF JANUARY, 1976: 17 years

I.Q.: Not available

LEVEL OF RETARDATION: Severely retarded

EDUCATIONAL SKILLS DESCRIPTION: Low functioning, limited reading skills (10 functional community sight words) Limited math/money skills (all coin recognition, counting skills to 18) Limited vocabulary.

PLACEMENT HISTORY:
NATURAL HOME: In natural home since birth - 5/58
BOARDING HOME: None
SCHOOL: Madison Public Schools 8/64 - Present

$\underline{S}_3$

SEX: Male

C.A. AS OF JANUARY, 1976: 20 years

I.Q.: Attempts to determine I.Q. score according to Peabody Picture Vocabulary and Standard I.Q. tests were undeterminable.

LEVEL OF RETARDATION: Severely retarded

EDUCATIONAL SKILLS DESCRIPTION: Low functioning, limited reading skills (20 functional community sight words) Limited math/money skills (all coin recognition, counting skills to 15) Unintelligible speech.

PLACEMENT HISTORY:
NATURAL HOME: In natural home since birth - 12/55
BOARDING HOME: None
SCHOOL: Public school in Arizona 9/73 - 11/75
Madison Public Schools 12/75 - Present

$\underline{S}_4$

SEX: Male

C.A. AS OF JANUARY, 1976: 17 years

I.Q.: Stanford Binet 30 (M.A. 2-9)

LEVEL OF RETARDATION: Severely retarded

MEDICAL DIAGNOSIS: Down's Syndrome - Mongolism

EDUCATIONAL SKILLS DESCRIPTION: Low functioning, limited reading skills (25 functional community sight words) Limited math/money skills (all coin recognition, counting skills to 20) Unintelligible speech.

PLACEMENT HISTORY:
NATURAL HOME: Home from 5/58 - 5/64
BOARDING HOME: Southern Wisconsin Colony 5/64 - 6/75
Madison Group Home 6/75 - Present
SCHOOL: Southern Wisconsin Colony 8/70 - 6/75
Madison Public Schools 8/75 - Present

$\underline{S}_5$

SEX: Male

C.A. AS OF JANUARY, 1976: 17 years

I.Q.: Stanford Binet 43 (M.A. 3-8)

LEVEL OF RETARDATION: Severely retarded

EDUCATIONAL SKILLS DESCRIPTION: Low functioning, limited reading skills (20 functional community sight words) Limited math/money skills (all coin recognition, counting skills to 10) Unintelligible speech.

PLACEMENT HISTORY:
NATURAL HOME: In natural home since birth - 11/58
BOARDING HOME: None
SCHOOL: Madison Public Schools 9/64 - Present

$\underline{S}_6$

SEX: Male

C.A. AS OF JANUARY, 1976: 16 years

I.Q.: Stanford Binet 34 (M.A. 3-3)

LEVEL OF RETARDATION: Severely retarded

MEDICAL DIAGNOSIS: Down's Syndrome - Mongolism

EDUCATIONAL SKILLS DESCRIPTION: Low functioning, limited reading skills (50 functional community sight words) Limited math/money skills (all coin recognition, counting skills to 50) Unintelligible speech.

PLACEMENT HISTORY:
NATURAL HOME: In natural home from 7/59 - 6/66
BOARDING HOME: Southern Wisconsin Colony 6/66 - 6/75
Madison Group Home 6/75 - Present
SCHOOL: Madison Public Schools 6/75 - present

TABLE 1

GENERATED FOOD LIST FOR PHASE I

Breakfast Foods

ITEM	SIZE/ QUANTITY	ESTIMATED PRICE
1. Sliced bread	1# loaf	$ .50
2. Butter	1#-4 sticks	1.00
3. Milk	½ gallon	1.00
4. Fresh fruit	½ dozen	.50
5. Frozen O.J.	6 oz. can	.50
6. Eggs	1 dozen	1.00
7. Peanut Butter	12 oz. jar	.50
8. Jelly	10 oz. jar	.50
Frozen Donuts	½ dozen	.50
Frozen Toaster waffles	1 package	.50
Syrup	12 oz. bottle	1.00
Cereal	Variety six-pack	.50
Bacon	½#	1.00

Lunch Foods

ITEM	SIZE/ QUANTITY	ESTIMATED PRICE
1. Sliced Bread	1# loaf	$ .50
2. Butter	1#-4 sticks	1.00
3. Milk	½ gallon	1.00
4. Fresh fruit	½ dozen	.50
5. Frozen O.J.	6 oz. can	.50
6. Eggs	1 dozen	1.00
7. Peanut Butter	12 oz. jar	.50
8. Jelly	10 oz. jar	.50
Tuna Fish	5 oz. can	1.00
Sliced Cheese	16 oz. pkgs.	1.50
Soda pop	6 pack cans	1.00
Cookies	1# package	.50
Canned Soup	11 oz. can	.50
Canned Spaghetti	15 oz. can	.50
Canned Vegetables	8½ oz. can	.50
Chips	6 pack	1.00
Hot dogs	1# package	1.00
Ketchup	10 oz. bottle	.50

Setting

Instruction took place in the student's classroom, in a kitchen at the group home and in a large supermarket which was an outlet of a chain serving Wisconsin and Illinois.

Materials

Specific materials necessary for various sections of the program are described within each phase. Listed below is a compilation of required materials:

1. table;
2. consumable food items appropriate for lunch and breakfast (See Table 1);
3. kitchen cabinet and refrigerator;
4. pictures of food items taped on shelves in front of each food;
5. prosthetic shopping aid (See Figure 1);
6. grease pencils;
7. five 1-dollar bills per student;
8. paper towels;
9. scotch tape.

Instructional Program

This section includes the teacher cues and student responses used to teach supermarket shopping skills. Any implementation of the program should fit cues and responses to individual needs. The written format lacks the complex interaction unique to teachers and students. Appropriate reinforcement should also be geared to the characteristics of the individual program. The cues and responses used in this program are presented here as a general guide to others interested in implementing a similar program and to help clarify the actual process. They are, however, to be used and adapted appropriately and not implement rigidly. In addition to the cues and responses a discussion of the correctional procedures is also provided. (Table 1 presents a list of the various food items used in the program).

PHASE I: Discriminating breakfast foods from lunch foods

Part 1: Labeling breakfast foods

Materials: Table with various consumable food items which can be eaten for breakfast and/or lunch.

T holds up one breakfast food item at a time and asks:

Teacher Cue	Student Response
1. "What is this?"	1. S verbally labels given food item.
2. "Do you eat this for breakfast or lunch?"	2. "For breakfast."

Part 2: Labeling lunch foods

T holds up one lunch food at a time and asks:

Teacher Cue	Student Response
1. "What is this?"	1. S verbally labels given food item.
2. "Do you eat this for breakfast or lunch?"	2. "For lunch."

Part 3: Labeling items which can be classified as breakfast and lunch

For food items (#1-8 in Table 1) which can be eaten for either breakfast and/or lunch, implement the following teaching procedure:

T randomly holds up one food item at a time which can be eaten for both breakfast and lunch and asks:

Teacher Cue	Student Response
1. "What is this?"	1. S verbally labels given food item.
2. "Do you eat this for breakfast or lunch?"	2. "Both"

Part 4: Discriminating breakfast foods from lunch foods

I randomly holds up one breakfast/lunch food item at a time and asks:

Teacher Cue	Student Response
1. "What is this?"	2. S verbally labels given food item.
2. "Do you eat this for breakfast or lunch?"	2. S correctly verbalizes whether given food item is eaten for breakfast or lunch.

PHASE II: Selecting food items needed for one breakfast or lunch

Materials: Table with various selected consumable food items which can be eaten for breakfast and/or lunch.

Food items are arranged on table in front of S.

Part 1: Selecting food items for one breakfast

Teacher Cue	Student Response
1. "Make one breakfast for yourself."	1. S selects desired breakfast food items to make one meal and places them in front of him.
2. "What are you having for breakfast?"	2. S states verbally breakfast food items chosen.
3. "Do you have enough to eat?"	3a. "Yes" response is correct if S has obtained enough food for one breakfast meal.*
	b. "No" response is correct if S has not chosen enough food for one breakfast meal.*
4. "Do you have too much?"	4a. "Yes" response is correct if S has chosen too much food for one breakfast meal.*
	b. "No" response is correct if S has enough food for one breakfast meal.
5. "Put them all back."	5. S returns food items with others on the table.

*Specified amounts of food for a given breakfast meal will be determined by I. Each meal should include one drink and a main course.

Part 2: Selecting food items for one lunch

Food items are arranged on a table in front of S.

Teacher Cue	Student Response
1. 'Make one lunch for yourself.'	1. S selects desired lunch food items to make one lunch meal, and places them in front of him.
2. 'What are you having for lunch?"	2. S verbally states lunch food items chosen.
3. "Do you have enough to eat?"	3a. "Yes' response is correct if S has obtained enough food for one lunch meal.*
	3b. "No' response is correct if S has not chosen enough food for one lunch meal.*
4. 'Do you have too much to eat?'	4a. 'Yes" response is correct if S has chosen too much food for one lunch meal.*
	4b. 'No' response is correct if S has enough for one lunch meal.*
5. "Put them all back.'	5. S returns all food items with others on the table.

*Specified amount of food for a given lunch meal will be determined by T. Each meal should include one drink, a main course, and, if desired a dessert.

Part 3: Selecting food items for one breakfast of lunch

Food items are arranged on table in front of S.

Teacher Cue	Student Response
1. 'Make one breakfast/lunch for yourself.'	1. S selects desired breakfast/lunch food items to make one meal, and places them on table in front of him.
2. 'What are you having for breakfast/lunch?'	2. S verbally states breakfast/lunch food items chosen.
3. 'Do you have enough to eat?'	3a. 'Yes" response is correct if S has obtained enough food for one breakfast/lunch meal.*
	b. "No' response is correct if S has not chosen enough food for one breakfast/lunch meal.*

Teacher Cue	Student Response
4. "Do you have too much to eat?"	4a. "Yes" response is correct if S has chosen too much food for one breakfast/lunch meal.*
	4b. 'No' response is correct if S has enough food for one breakfast/lunch meal.*

*Specified amounts of food for a given breakfast/lunch meal will be determined by T. Each meal should include one drink, a main course, and, if desired, a dessert.

PHASE III: Selection of food items for one breakfast or lunch from a refrigerator and/or cabinet

Materials: Kitchen cabinet and refrigerator with various selected consumable food items. Pictures of actual food items taped on shelf in front of each food item. Kitchen counter.

Part 1: Selecting food items for one breakfast from a refrigerator and/or cabinet

Teacher Cue	Student Response
1. 'Go to the cabinet/refrigerator and get the things you need to make one breakfast meal.'	1. S goes to the cabinet/refrigerator and selects desired breakfast food items to make one meal and places them on counter in front of him.
2. 'What are you having for breakfast?'	2. S verbally states breakfast food items chosen.
3. 'Do you have enough to eat?'	3a. 'Yes' response is correct if S has obtained enough breakfast food items for one breakfast meal.*
	b. 'No' response is correct if S has enough food for one breakfast meal.*
4. 'Put them all back."	4. S correctly returns all breakfast food items to cabinet/refrigerator shelves behind corresponding pictures.

*Specified amounts for given breakfast meal will be determined by T. Each meal should include one drink and a main course.

Part 2: Selecting food items for one lunch from a refrigerator and/or cabinet

Teacher Cue	Student Response
1. 'Go to the cabinet/refrigerator and get the things you need to make one lunch."	1. S goes to the cabinet/refrigerator and selects desired lunch food items to make one lunch meal, and places them on the counter in front of him.
2. 'What are you having for lunch?"	2. S verbally states lunch food items chosen.
3. "Do you have enough to eat?"	3a. "Yes" response is correct if S has obtained enough food for one lunch.*
	b. "No' response is correct if S has not chosen food for one lunch meal.*
4. "Do you have too much to eat?"	4a. 'Yes' response is correct if S has chosen too much food for one lunch meal.*
	b. 'No" response is correct if S has enough food for one lunch meal.
5. 'Put them all back.'	5. S correctly returns all lunch food items to cabinet/refrigerator shelves behind corresponding pictures.

*Specified amounts of food for a given lunch meal will be determined by T. Each meal should include one drink, a main course, and, if desired, a dessert.

Part 3: Selecting food items for one breakfast or lunch from a refrigerator and/or cabinet.

Teacher Cue	Student Response
1. 'Go to the cabinet/refrigerator and get all the things you need to make one breakfast/lunch meal."	1. S goes to the cabinet/refrigerator and selects desired food items to make one breakfast/lunch meal, and places them on counter in front of him.
2. 'What are you having for breakfast/lunch?"	2. S verbally states breakfast/lunch food items chosen.
3. 'Do you have enough to eat?'	3a. 'Yes' response is correct if S has selected enough breakfast/lunch food items for one breakfast/lunch meal.*

Teacher Cue	Student Response
	b. "No" response is correct if S has not selected enough food for one breakfast/lunch meal.*
4. "Do you have too much to eat?'	4a. "Yes' response is correct if S has selected too much food for one breakfast/lunch meal.*
	b. 'No' response is correct if S has selected enough food for one breakfast/lunch meal.*
5. "Put them all back."	5. S correctly returns breakfast/lunch food items to cabinet/refrigerator shelves behind corresponding pictures.

*Specified amounts for given breakfast/lunch meal will be determined by T. Each meal should include one drink, a main course, and if desired, a dessert.

PHASE IV: Transferring pictures of consumed food items to refrigerator and/or cabinet door

Part 1: Transferring pictures of consumed one-serving items (e.g., canned soup) to refrigerator and/or cabinet door.

Materials: Kitchen cabinet and refrigerator; pictures of actual food items taped to shelves in cabinet/refrigerator; various consumable a) one-serving food items (e.g., tuna fish, canned spaghetti, soup, etc.); b) bulk food items (e.g., variety pack cereal, sliced cheese, snack-pack pudding, etc.); c) judgement food items (e.g., peanut butter, jelly, syrup, etc.) placed behind corresponding picture on cabinet/refrigerator shelf.

Teacher Cue	Student Response
1. 'Make one breakfast/lunch for yourself.'	1. S goes to cabinet/refrigerator, removes all desired food items from shelves, and places them on counter in front of him.
2. 'What are you having for lunch?'	2. S verbally states all food items chosen for specified meal.
3. 'Are you going to use all of the ________?' (Name chosen food items individually)	3. S verbalizes correct response. a. "Yes' response is correct if S has chosen a one-serving food item.
	b. 'No' response is correct if S has chosen a food item that is not a one-serving item.

Teacher Cue	Student Response
4. 'How do you know that you need to buy more ______?'' (Name food items that need replacement individually)	4. ''There's no more ______left.'' (S names food items that need replacement individually)
5. If S's response to Step 3 is 'yes', I asks:	
a. 'What do you do to show that you need to buy more _____?' (Name food items that need replacement individually)	a. 'Move the picture.'' S then moves the picture of consumed one-serving food item(s) from shelf to side of cabinet/refrigerator door.
b. 'Why don't you move the ____picture?' (Name food items that do not require replacement individually)	b. S points to food item(s) and says, 'There's some left.'
6. I points to food items that will not be replaced and asks, 'What are you going to do with this food since there's some left?'	6. 'Put it back.' S replaces food items on shelf behind corresponding pictures.
7. 'What do you need to buy when you were going to the grocery store?'	7. S looks on cabinet/refrigerator door, points to each item, and verbally labels name(s) of pictured food item(s) he has moved.

Part 2: Transferring pictures of consumed bulk-food items (e.g., variety pack cereal) to refrigerator and/or cabinet door

Teacher Cue	Student Response
1. ''Make one breakfast/lunch for yourself.'	1. S goes to kitchen cabinet/refrigerator and removes all desired food items from shelves and places them on counter in front of him.
2. 'What are you going to have for breakfast/lunch?'	2. S verbally states all food items chosen for specified meal.
3. 'Will you have to buy more ________ when you go to the grocery store?' (Name chosen food items individually)	3. S verbalizes correct response. a. ''Yes'' response is correct if S has chosen a one-serving food item, or, if S sees that there are only two of a bulk item(s) left.

	b. "No" response is correct if food item does not need replacement.
4. 'How do you know that you need to buy more ______?' (Name food items that need replacement individually)	4. S points to needed bulk-food items and states, 'There are only two left.'
5. If S's response to Step 3 is 'Yes', T asks,	
a. 'What do you do to show that you need to buy _______?' (Name food items individually) (If S's response to Step 3 is 'No' T asks,	5a. 'Move the picture.' S then moves picture of needed one-serving and bulk-food items from shelf to inside of cabinet/refrigerator door.
b. 'Why don't you move the _____ picture?' (Name food items that will not be replaced individually)	b. S points to food item(s) and states, 'There's more than two left.'
6. T points to food items that need not be replaced and asks, 'What are you going to do with this food since there's some left?'	6. 'Put it back.' S takes food item(s) and returns it back to shelf behind corresponding picture.
7. 'What do you need to buy when you were going to the grocery store?'	7. S looks on cabinet/refrigerator door and names verbally pictured food item(s) he has moved.

Part 3: Transferring pictures of consumed judgement items (e.g., peanut butter) to refrigerator and/or cabinet door.

Teacher Cue	Student Response
1. 'Make one breakfast/lunch for yourself.'	1. S goes to kitchen cabinet/refrigerator, removes all desired food items from shelf, and places them on counter in front of him.
2. 'What are you going to have for breakfast/lunch?'	2. S verbally states all food items chosen for specified meal.
3. 'Will you have to buy more ______ when you go to the grocery store?' (Name chosen food items individually)	3. S verbalizes correct response: a. 'Yes' response is correct if one-serving food item(s) has been chosen; there are only two of a selected bulk-food item left; and/or food in judgement item goes below drawn line.

		b.	'No' response is correct if the food item(s) does not need replacement.
4.	'How do you know that you need to buy more _____? (Name judgement food items that need replacement individually)	4.	S points to line drawn on food container and says, 'It's below the line.'
5.	If S's response to Step 3 is 'Yes', T asks,		
a.	'What do you do to show that you have to buy more _____?' (Name food items that need replacement individually)	5a.	'Move the picture.' S moves picture of all needed food items from shelf to inside of cabinet/refrigerator door.
b.	'Why don't you move the _____?' (Name judgement food items that will not be replaced individually)	b.	S points to line drawn on food container and says, 'There's more left.'
6.	T points to food item(s) that do not need to be replaced and asks, 'What are you going to do with this food since there's more left?'	6.	'Put it back.' S takes food item(s) and replaces them back on shelf behind corresponding picture.
7.	'What do you need to buy when you were going to the grocery store?'	7.	S looks on side of cabinet/refrigerator door and verbally states name(s) of pictured food item(s) he has moved.

Phase V: Teaching the function and components of supermarket

Part I: Teaching the function of a supermarket

	Teacher Cue		Student Response
1.	'Where do people go when they want to buy food?'	1.	'Grocery store.'
2.	'Who has gone to a grocery store?'	2.	various
3.	'Who goes to the grocery store with your parents or friends?'	3.	various
4.	'Who goes to the grocery store by themselves?'	4.	various

5. "How often do you go to the grocery store?"	5. various
6. "We are going to learn how to go grocery shopping at KOHL's. People go grocery shopping to buy food that they need."	6. No response
7. 'Why do people go to the grocery store?'	7. 'To buy food."
8. "What things do you find in the grocery store?"	8. 'Food"; things to eat; food to cook, etc.
9. "If your mom sent you to buy food, where would you go?"	9. "Grocery store."

Part 2: Teaching the need for a shopping list and money to make purchases

Teacher Cue	Student Response
1. 'When you have to go to the grocery store, there are a few things you will need to take with you. One thing is a shopping list."	1. No response
2. 'What is one thing you have to take with you when you go to the grocery store?'	2. 'A shopping list.'
3. "People write down on a piece of paper the food they will need to buy.	3. No response
4. 'What do people write down on a piece of paper?'	4. "The food(s) they need to buy."
5. 'What is this piece of paper called?"	5. 'A shopping list.'
6. "When people go to the grocery store they take along their shopping lists so they can remember what they need to buy.'	6. No response
7. 'Why do people take along their shopping lists with them when they go to the grocery store?"	7. "So they can remember what they need to buy."

8. 'Besides a shopping list, people take along money to the grocery store. They pay for their groceries with this money.'	8. No response
9. 'Besides a shopping list, what else do people take with them to the grocery store?'	9. 'Money.'
10. 'What do people do with their money?'	10. 'Pay for their groceries.'
11. 'Tell me two things people take with them to the grocery store?'	11. 'Money and a shopping list.'

Part 3: Discriminating the components of a supermarket

Teacher Cue	Student Response
1. 'Today we are going to watch a video tape of Kohl's grocery store.'	1. No response
2. 'Why do you go to Kohl's grocery store anyway?'	2. "To buy groceries.'
3. I starts machine and stops picture when video show the "in' and 'out' doors. "What do we use when we go in the store?'	3. S points to "in" door on the screen and verbalizes 'This one.'
4. I starts machine again and stops when the picture comes to cart area. 'What are these for?'	4. 'To carry food in.'
5. The following two procedures (a,b) are interchangeably used until video reaches check-out lane.	
a. I starts machine and stops at different food items (especially food items from lists) 'What is this?'	5a. S watches video carefully and correctly labels food item.
b. I starts machine. 'Stop the machine when you see ______.' (Name specific food item)	b. S watches screen and stops machine when desired food item appears. S then points to and labels item correctly.

6.	I stops machine at checkout lane, when it appears on the screen. 'After we get all the food we need to buy, what do we do?	6.	Check out' or 'Pay for the food.'
7.	'Where do you go when you need to check out?' (or 'Pay for groceries')	7.	'A check-out lane' and points to lane on the screen.
8.	'How do you know which check-out lane to use?:	8.	'Stand behind someone.'
9.	'What if no one's in line?'	9.	'Go where there is a checker.'

PHASE VI: Generating a shopping list and determining money for grocery purchases

Materials: Prosthetic device with grease pencil attached hung on front of cabinet door, kitchen cabinet and refrigerator with various selected consumable food items; pictures of actual food items taped on shelf in front of corresponding food item; pictures of consumed food items taped on cabinet/refrigerator door determined from Phase IV; one dollar bills.

Part 1: Generating a shopping list

	Teacher Cue		Student Response
1.	'It's time to go grocery shopping. What do we need to buy?'	1.	S looks at side of cabinet/refrigerator door and verbally states name(s) of pictured food item(s) he has moved.
2.	'Get your shopping list.'	2.	S obtains prosthetic device and grease pencil from front of cabinet door.
3.	'Now mark your shopping list. Put an 'X' next to each food item you need to buy.'	3.	S points to and labels each food item on cabinet/refrigerator door and marks corresponding pictured food items shown on device until all needed food items are marked.
4.	'What are you going to buy at the grocery store?'	4.	S scans each column on device from top to bottom starting at the far left column and verbally states names of each marked food items.

Part 2: Determining money for grocery purchases

	Teacher Cue		Student Response
1.	I draws a line with a grease	1.	S takes money and puts it in

Teacher Cue	Student Response
pencil to the right of the amount on the money-gauge of the grocery shopping card which corresponds to the total value of the items checked off on the card. T says, "Here's the money you'll need for shopping (gives S one dollar bills equalling amount checked off on card).	wallet or purse.
2. T points to the line drawn on money-gauge and says, 'What does it mean when you get to this line?'	2. 'No more money for shopping' or 'Stop shopping.'

PHASE VII: Purchasing food items at an actual supermarket[15]

Materials: Various amounts of one-dollar bills; grocery shopping card with items to be purchased checked-off.

Part 1: Securing food items

Teacher Cue	Student Response
1. Once at the grocery, T asks, "You want to go into the grocery store. What door should you use?"	1. S points to door marked 'IN' and verbally states, 'This one.' S and T enter grocery store, via 'IN' door.
2. 'What do you need to carry all your groceries in?'	2. 'A grocery (shopping) cart.'
3. 'Get one.'	3. S obtains one grocery cart.
4. 'Look at your list. What's the first thing you have to buy?'	4. S takes device and looks for first item marked with an 'x', points to it, and verbally states name of food item needed.
5. 'Go find it.'	5. S pushes cart up and down aisle until he finds desired food item. S picks food item from shelf and places it in cart.
6. 'Did you get the _______?'	6. 'Yes.'

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[15] All teacher cues in the three parts of this phase should eventually be faded to facilitate self-initiated student performance.

Teacher Cue	Student Response
7. 'Now move the dot(s).'	7. S takes dot(s) which corresponds to item chosen from device and places it starting at 0 and going consecutively up the money gauge in a left to right fashion.

Note: This procedure continues until all desired food items are obtained.

Part 2: Check-out sequence

Teacher Cue	Student Response
1. 'Do you have all the things you need?'	1. S looks at device, checks to see if all needed food items are in his cart, and says, "Yes."
2. 'Now go check-out your groceries.'	2. S finds open check-out lane and transfers food items from cart to belt.
3. 'Is all the food on the belt?'	3. S looks in cart and verbally states, "Yes.'
4. 'Push the cart through the check-out lane.'	4. S pushes cart through check-out lane to aisle, then returns to pay for groceries .

Part 3: Payment sequence

Teacher Cue	Student Response
1. After checker states amount of groceries, T says, 'Pay the checker for your groceries.'	1. S gets out all given one dollar bills and hands them to the checker.
2. 'Wait for your change and slip (receipt).'	2. S holds hand out to checker and waits for change and slip.
3. 'Now move to the end of the check-out lane, and put your change in your pocket."	3. S moves to the end of the check-out lane and puts change and slip (receipt) in wallet or pocket.
4. 'Pick up your groceries and go.'	4. S picks grocery bag(s) and leaves via 'OUT" door.

PHASE VIII: Replacing food items purchased at a supermarket and pictures corresponding to those items to the appropriate refrigerator or cabinet shelf.

Part 1: Putting groceries/pictures on appropriate shelves

Teacher Cue	Student Response
1. Upon returning from supermarket to kitchen area, I says, 'Put the groceries away.'	1. S places purchased food items on appropriate kitchen cabinet/ refrigerator shelves.
2. 'Move the pictures back to the shelves.'	2. S removes picture from side of cabinet/refrigerator door and tapes it on shelf in front of corresponding purchased food item.'

Note: This procedure continues until all pictures are taped on shelf in front of corresponding purchased food items.

Teacher Cue	Student Response
3. 'Did you put everything back?'	3. S looks in grocery bag, sees that it is empty and verbally responds 'Yes'.
4. 'Did you put the pictures back?'	4. S looks on side of cabinet/refrigerator door and shelves and verbally responds 'Yes'.
5. 'Are the pictures in the right place?'	5. S looks at pictures and corresponding food items, behind pictures and verbally responds 'Yes'. S closes cabinet/refrigerator doors.
6. 'Throw the bag(s) away.'	6. S takes grocery bag(s) and throws it away in trash container.

PHASE IX: Erasing checked-off food items and replacing moveable dots to appropriate areas of the grocery shopping card.

Materials: Kitchen cabinet, prosthetic device, grease pencil, paper towel, tape.

Part 1: Replacing the dots and erasing checked-off food items

Teacher Cue	Student Response
1. 'Take your shopping list and put back the dots.'	1. S obtains shopping list, takes correct number of velcro dots from money gauge and places them next to food item(s) marked with 'X' on the device.

Note: This procedure continues until all dots from money gauge are correctly replaced next to food items marked with an 'X' on the device.

Teacher Cue	Student Response
2. "Erase the "X's".	2. S takes paper towel and completely erases all "X's" on device.
3. "Put your pencil and shopping list back."	3. S clips grease pencil to device and tapes shopping device to front of cabinet door.

CORRECTION PROCEDURE

Definition of Instructional Procedures

1. Correct Responses: (+) were scored when the student performed desired responses[16] following a teacher cue without any further verbal or physical assistance. Verbal praise was used to consequate these desired responses.

   a. If S emits the desired response T will continue the response chain by presenting the next teacher cue.

   b. If S fails to emit the desired response, follow the instructional procedure below.

2. Verbal Prompt (VP): A VP, presented by T, indicated to S that he/she had made an error. For example if S fails to select a beverage while making a meal a verbal prompt might be "Wow, if I ate that meal for lunch I sure would get thirsty!"

   a. If S appropriately responded to the verbal prompt, the original cue was presented again. A (VP) was scored if S performed the desired response following a verbal prompt. If S still performed incorrectly, procedure 3 was implemented.

3. Modeling (M): Modeling has been defined as the training technique or operation of demonstrating a response or chain of responses to a

---

[16] Desired response can typically be defined as a verbal or physical approximation of the desired response in the task analysis. Often this criteria was left to the discretion of the teacher.

student and then directing the student immediately to imitate the performance. Modeling was used to teach selected verbal and nonverbal responses.

a. If S imitates the model T scores (M) and continues the response chain (i.e., issues next teacher cue).

b. If S fails to imitate T's model procedure 4 was implemented when appropriate. If priming was not appropriate (i.e., most verbal responses) T continued modeling and using verbal prompts until the situation demonstrated that it was no longer appropriate.

4. Priming (P): Priming is the procedure of guiding S physically through a response or response sequence. Priming can be used to teach selected nonverbal behaviors.

Fading: Fading refers to a process of gradually reducing the strength of the contrived stimuli controlling a response until the response is controlled by more naturally occurring stimuli. Priming cues were faded by gradually fading T's physical guidance, thus requiring S to perform more of the responses unaided. Models were faded by gradually presenting a less demonstrative model, requiring S to successively perform more of the response without T assistance.

An example of how to apply the correctional procedure will be provided for selected parts of Phase I and Phase II. From the preceding discussion and from these examples it is hoped that it will be clear as to how the procedure is applicable to each step in the task analysis for the grocery store program.

Sample #1: Phase I, Part 2, Step 2

Teacher Cue

"Do you eat this (i.e., holds up a selected lunch food) for breakfast or lunch?"

Student Response

1. A correct response (+) was scored if S responded "lunch".
   a. If S answered 'lunch' verbal praise was given and I presented the next cue.
   b. If S failed to emit the desired response (e.g., answered 'Breakfast') I presented procedure 2.
2. A verbal prompt was presented (e.g., 'You mean when I get up in the morning I can make this can of spaghetti for breakfast?")
   a. If S performs desired response (i.e., now answeres 'lunch' to the original I cue) a (VP) was scored and the next I cue was presented.
   b. If S fails to perform the desired response after a verbal prompt procedure 3 was used.
3. I models the desired response (e.g., 'Oh spaghetti, I can eat spaghetti for lunch! Do you eat spaghetti for breakfast or lunch?").
   a. If S imitates the model, (M) is scored and the next I cue is presented.
   b. If S fails to imitate I may use procedure 4 (when dealing with nonverbal responses). Priming is not appropriate for this verbal response, therefore I may continue modeling and using verbal prompts until I feels it is no longer appropriate.

Sample #2: Phase II, Part 2, Step 4

Teacher Cue

Do you have too much (referring to the amount of food S has selected to prepare one lunch for her/himself)?"

Student Response

1. A 'Yes' response was correct if S had chosen too much food for one

lunch meal. Under these circumstances I would direct S to put back some food until there was just enough for one lunch meal. A 'No' response was correct if S had selected just enough food for one breakfast meal.

a. If S answered correctly a (+) was scored, the answer was verbally reinforced and the next I cue was presented.

b. If S failed to answer appropriately, procedure 2 was implemented.

2. I uses a verbal prompt [e.g., 'Are you sure you are going to eat all this (I names all food items S has selected) for one lunch?']

a. If S appropriately responds to the verbal prompt, I would cue S to put back some food until there was just enough for one lunch. A (VP) was scored and appropriate response reinforced verbally.

b. If S failed to emit the desired response following a verbal prompt, procedure 3 was implemented.

3. I models the desired response (e.g., 'Oh, you have too much for just lunch! Look you are going to make a tuna fish sandwich, that's great! You have milk to drink and cookies for dessert, that's good! But you are going to make beans and corn. You must put the beans or the corn back.') (I performs the action while talking). I repeats original cue.

a. If S imitates the model, a (M) is scored and the next I cue is presented.

b. If S fails to imitate the model, I implemented procedure 4.

4. I physically primes S through response. In this case the preceding model may provide the verbal directions to accompany I assisting

S in recognizing there is "too much" food and that some food must be put back. After priming I may repeat the original cue. (P) is scored if priming is necessary. I may continue to prime and model until I feels it is no longer appropriate.

RESULTS

Instruction was begun during the second semester of the 1975-76 school year. Thus, the program was implemented for only 16 weeks. The writers intend to continue instruction during the next school term.

The number of teaching trials necessary for each student to demonstrate criterion performance throughout the various phases of the program are presented in Table 2. Of the six students involved in the program, students 5 and 6 completed all nine phases. Students 3 and 4 demonstrated criterion performance during Phases I, II, III and IV. Instruction was interrupted for Students 3 and 4 by the ending of the school year but will be continued next term. In addition, Student 2 completed Phases I and II and Student 1 completed Phase I and Parts 1 and 2 of Phase II. As with Students 3 and 4, the end of the school year interrupted the training but these students will also continue to be instructed during the next school year.

TABLE 2

NUMBER OF TRIALS TO CRITERION

Student	Phase I				Phase II			Phase III			Phase IV		
	Part 1	Part 2	Part 3	Part 4	Part 1	Part 2	Part 3	Part 1	Part 2	Part 3	Part 1	Part 2	Part 3
$\underline{S}_1$	15	12	17	10	14	16							
$\underline{S}_2$	10	17	19	15	12	10	14						
$\underline{S}_3$	7	4	9	8	10	12	15	8	4	10	11	15	8
$\underline{S}_4$	9	10	14	11	9	11	13	6	5	8	13	15	6
$\underline{S}_5$	4	5	9	7	12	9	13	5	3	7	7	10	6
$\underline{S}_6$	7	5	11	9	12	3	10	3	3	3	6	9	5

TABLE 2
(continued)

NUMBER OF TRIALS TO CRITERION

Student	Phase V		Phase VI			Phase VII		Phase VIII		Phase IX
	Part 1	Part 2	Part 1	Part 2	Part 3	Part 1	Part 2	Part 1	Part 2	Part 1
$\underline{S}_1$										
$\underline{S}_2$										
$\underline{S}_3$										
$\underline{S}_4$										
$\underline{S}_5$	7	5	13	15	9	3	3	6	5	7
$\underline{S}_6$	6	4	10	13	8	4	4	5	4	6

DISCUSSION

Two students (students 5 and 6) acquired the skills necessary to independently generate a shopping list based upon the need to replenish consumed or partially consumed foods, and to use the shopping list to purchase these items at a large supermarket. Since the prosthetic shopping device was used to teach these skills, it can be concluded that it is an effective tool for teaching severely handicapped students to shop at supermarkets. The conclusion that severely handicapped students can use such a device to shop independently is especially interesting when one considers the fact that basic match-to-sample skills appear to be the only necessary prerequisite for acquisition.

Prosthetic devices provide a viable method of circumventing the inordinate amounts of time otherwise needed to teach community survival skills to severely handicapped students. Faster rates of skill acquisition will enable severely handicapped individuals to enter into community environments more quickly. However, simply shortening the time required to prepare a severely handicapped individual for community living should not be _the_ terminal goal. It is our responsibility as teachers to continually expand the skills of our students. Reliance upon prosthetic devices might create a situation where a severely handicapped person has so many cards, books and gadgets that community interactions become cumbersome, if not embarrassing. For some students, the continued use of such devices as the grocery shopping card used in this program may be a necessity. But more sophisticated natural shopping skills should be taught to students who can acquire them will no longer be dependent on prosthetic aids.

APPENDIX A

SAMPLE DATA SHEET FOR PHASE I PARTS 1-4

PROGRAM____________________

PHASE____________________

DATE____________________

STU-DENT	TUNA FISH	EGGS	CHEESE	PEANUT BUTTER	COOKIES	O.J.	POP	SOUP	BREAD	CEREAL

STU-DENT	JELLY	FRUIT	SYRUP	LUNCH MEAT	CHIPS	OAT-MEAL	BACON	CANNED GOODS*	WAF-FLES	CATSUP

STU-DENT	MILK	DONUTS	CANNED VEGETABLES	

* SPAGHETTI, POTATOE SALAD, STEW, ETC.

+ = CORRECT RESPONSE
- = INCORRECT RESPONSE

REMARKS -

APPENDIX B

SAMPLE DATA SHEETS FOR PHASES II, III AND IV

PROGRAM____________________

PHASE____________________

DATE____________________

STUDENT	BREAKFAST	LUNCH	BREAKFAST	LUNCH

= TOTAL CORRECT RESPONSE
P = VERBAL PROMPT GENERATING CORRECT RESPONSE
P = VERBAL PROMPT WHICH DOES NOT GENERATE CORRECT RESPONSE
M = MODEL PROCEDURE

REMARKS -

SAMPLE DATA SHEET FOR PHASE VI

PROGRAM____________________

PHASE____________________

DATE____________________

STUDENT	MARKS DEVICE CORRECTLY	MARKS DEVICE INCORRECTLY	FAILS TO MARK DEVICE

IS PLACED IN BOX WHICH DESCRIBES STUDENT'S RESPONSE

REMARKS -

APPENDIX C

SAMPLE DATA SHEET FOR PHASE VIII

PROGRAM________________

PHASE__________________

DATE___________________

STUDENT	REPLACES FOOD ITEMS	REPLACES PICTURE

= CORRECT RESPONSE
- = INCORRECT RESPONSE
p = PROMPT

REMARKS -

APPENDIX D

SAMPLE DATA SHEET FOR PHASE IX

PROGRAM________________

PHASE________________

DATE________________

STUDENT	REPLACES DOTS	ERASES Xs

= CORRECT RESPONSE
- = INCORRECT RESPONSE
P = PROMPT

REMARKS -

MAKING PURCHASES: A FUNCTIONAL MONEY-USE PROGRAM FOR SEVERELY HANDICAPPED STUDENTS[1]

Nick Certo and Barbara Swetlik[2]

University of Wisconsin and Madison Public Schools

ABSTRACT

Ten severely handicapped students, enrolled in a Madison, WI public school classroom, were taught various skills necessary to use money to make purchases at a simulated classroom store and at actual community stores. Instruction was divided into four major task phases: discriminating and labeling coins; determining the worth of a penny; counting pennies and making purchases; making purchases with pennies at simulated and actual stores. The implementation of the program spanned two school years. Based upon the results, it was concluded that functional money skills were acquired by the students, and that the program can be used efficiently to teach money-use skills.

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[2] The authors would like to acknowledge the assistance of Pamela Timm, Mary Kudla and Jan Carlson in the teaching of various parts of this program.

TABLE OF CONTENTS

INTRODUCTION 273
TASK ANALYSIS 275

METHODOLOGY

Students 281
Setting 281
Materials 282
Instructional Program 283
Phase I 283
Phase II 292
Phase III 301
Phase IV 329

RESULTS

Summary of Criterion Performance 336
Specific Performance Information 336
Table 1: Summary of Criterion Student Performance for all Program Phases 338
Figure 1: $\underline{S}_{10}$; Phase I, Parts 3-5 339
Figure 2: $\underline{S}_{4}$; Phase III, Part 1 340
Figure 3: $\underline{S}_{6}$; Phase III, Part 2 341

DISCUSSION

Skill Acquisition 342
Instructional Time 342
Sequence Efficiency 343
Concluding Comments 344
REFERENCES 344

INTRODUCTION

Learning how to use money is one of the many necessary practical skills that facilitates independent community living. Money skills are frequently taught to trainable and severely handicapped students in academic settings. However, instruction in this and other practical skills is often not begun until a student is 16 or 17 years old. Because of the number of skills required to use money independently, there is often insufficient time to teach these skills before a student leaves school. This program represents an attempt to teach money skills to much younger students.

One important aspect of this program was the early introduction to making purchases. As soon as the students had learned to label coins and tell the worth of one penny, they began to make purchases of one cent items. This was done so students would realize from the beginning that money is used to buy things and to heighten their interest in counting pennies. An attempt was made to include situations which a student would encounter in actual community stores, e.g., buying items with and without price tags, choosing an item from several different items having the same price, and at times not having enough money to make a desired purchase. Since stores, restaurants, etc., do not consistently follow the same format when marking the price of items, displaying goods, or arranging payment procedures, the students were taught alternative responses to facilitate transfer to appropriate community environments.

The longitudinal program goal was independent purchasing at community stores. As a result, the students were weaned, as quickly as possible, from purchasing responses initiated and maintained by a teacher, to responses initiated by the student or by being in a store. Another component of independent purchasing which is often ignored, is the speed at which an individual counts money. The students involved in this program were taught to count coins at a rate which would insure they would not attract unnecessary attention from unsympathetic clerks or from people waiting behind them.

Initially, the authors intended to teach the students to make purchases up to one dollar. However, an inordinate amount of time (two school years), was necessary to complete instruction with pennies. As a result this program only reports on purchasing items with pennies. Extensions of the purchasing skills which include other coins have already been implemented and will be reported when completed. It seems that the time spent teaching this program was useful, since the data from the extensions are indicating a faster rate of acquisition. The program reported in this paper is an initial attempt to develop a viable model which can be used to teach functional money skills to trainable and severely handicapped students.

TASK ANALYSIS

Phase 1: Sorting, matching, and labeling U.S. pennies, nickels, dimes, quarters.

Part 1 - Sorting money from things that are not money.

S correctly discriminates between objects that are money (i.e., U.S. coins of 1-25¢ denominations) and objects that are not money across at least three cues from T.

Part 2 - Sorting one coin from another.

On cue from T, S consistently places each coin she/he is given on top of or near a sample coin that has been provided and identified by T according to the following sequence:

Step 1 - Sorting pennies from nickels.

Step 2 - Sorting pennies, nickels and dimes.

Step 3 - Sorting pennies, nickels, dimes and quarters.

Part 3 - Sorting one coin from another from a group of mixed coins.

This part is the same as Part 2, following the same sequence of steps, except that S is given all the coins that she/he is required to sort at the start of each trial. In addition, the sample coins are still provided. The chief difference, then, is that S is not handed each coin to be sorted by T in succession.

Step 1 - Sorting pennies from nickels.

Step 2 - Sorting pennies, nickels and dimes.

Step 3 - Sorting pennies, nickels, dimes and quarters.

Part 4 - Matching coins.

T holds up a coin (randomly chosen, determined by step - see below), labels it and asks S to touch another coin that is the same. S matches the coin by touching the one that is the same from an array in front of S

Step 1 - Matching pennies and nickels.

Step 2 - Matching pennies, nickels and dimes.

Step 3 - Matching pennies, nickels, dimes,and quarters.

Part 5 - Labeling coins.

When asked for the name, S correctly labels the coin that T is holding.

Step 1 - Labeling pennies.

Step 2 - Labeling nickels.

Step 3 - Labeling pennies and nickels when presented randomly.

Step 4 - Labeling dimes.

Step 5 - Labeling pennies, nickels and dimes when randomly presented.

Step 6 - Labeling quarters.

Step 7 - Labeling pennies, nickels, dimes and quarters when randomly presented.

Phase II: Indicating a penny's worth; discriminating between items worth a penny and items worth more than one cent; counting one cent; reading price tags; and purchasing items worth one cent.

Part 1 - Labeling pennies.

S labels or gesturally indicates a penny when T presents S with a penny and the cue, "What is the name of this coin? Name this coin." or other appropriate cue variations.

Part 2 - Labeling penny - worth.

S labels or gesturally indicates that a penny is worth one cent when T holds up a penny and asks, "How much is a penny worth? What is this worth?" or other appropriate cue variations.

Part 3 - Labeling items worth one cent.

S labels or gesturally indicates items that are worth one cent when T says, "What can you buy with a penny? What costs a penny.[2] Tell me some things that are worth one cent," with and without a chart displaying pictures of one cent items.

Step 1 - Labeling items worth one cent with a chart.

Step 2 - Labeling items worth one cent without a chart.

Part 4 - Purchasing an item worth one cent for an array containing one item worth one cent and others worth more than one cent.

S takes one penny from T, chooses the one cent item from the array, and makes a purchase (Note: S is only allowed to keep one item purchased per session as a practical constraint).

Part 5 - Purchasing an item worth one cent from an array containing two items worth one cent and others worth more than one cent.

S asks for one penny from T, chooses a one cent item (all items have price tags) from the array, and makes a purchase (Note: S is only allowed to keep one item per session as a practical constraint).

Part 6 - Purchasing an item worth one cent from an array containing either one or two penny items, or determining that a penny item cannot be purchased when there is no penny item in the array.

Same as Parts 4 and 5, except that T alternates trials so that on a given trial there is one penny item, two penny items, or no items worth one cent.

Phase III: Labeling the worth of various amounts of pennies; counting out a given number of pennies; counting a specified number of pennies from a larger group; counting pennies at a specified rate; and counting pennies through the use of worksheets.

Part 1 - Labeling worth of various amounts of pennies.

S labels or gesturally indicates the worth of pennies, varying between 1 and 10 cents, after T verbally states the number of pennies that have been placed in front of S.

Step 1 - S labels or gestures worth of 1-5¢ in order of increasing value.

Step 2 - S labels or gestures worth of 1-5¢ randomly presented.

Step 3 - S labels or gestures worth 6-10¢ in order of increasing value.

Step 4 - S labels or gestures worth of 6-10¢ randomly presented.

Part 2 - Counting a given number of pennies.

When presented with a given number of pennies, S counts each penny, labels the total, specifies the value of the amount counted, and makes occasional purchases.

Step 1 - S counts and labels or gestures worth of 1-5¢ in order of increasing value.

Step 2 - S counts and labels or gestures worth of 1-5¢ randomly presented.

Step 3 - S counts and labels or gestures worth of 6-10¢ in order or increasing value.

Step 4 - S counts and labels or gestures worth of 6-10¢ randomly presented.

Step 5 - S counts and labels or gestures worth of 1-10¢ randomly presented.

Part 3 - Counting a given number of pennies at a specified rate.

When presented with a given number of pennies, S counts the pennies at a specified rate.

Step 1 - S counts pennies from 1-5¢ in order of increasing value at a specified rate.

Step 2 - S counts pennies from 1-5¢ randomly presented at a specified rate.

Step 3 - S counts pennies from 6-10¢ in order of increasing value at a specified rate.

Step 4 - S counts pennies from 6-10¢ randomly presented at a specified rate.

Step 5 - S counts pennies from 1-10¢ randomly presented at a specified rate.

Part 4 - Counting a number of pennies from a larger group.

S counts a number of pennies cued by T from a larger group of pennies (i.e., more than amount cued), specifies the value of the amount counted, and makes occasional purchases.

Step 1 - S counts and labels or gestures worth of 1-5¢ from a larger group in order of increasing value.

Step 2 - S counts and labels or gestures worth of 1-5¢ from a larger group randomly presented.

Step 3 - S counts and labels or gestures worth of 6-10¢ from a larger group in order of increasing value.

Step 4 - S counts and labels or gestures worth of 6-10¢ from larger group randomly presented.

Step 5 - S counts and labels or gestures worth of 1-10¢ from a larger group randomly presented.

Part 5 - Counting pennies from a larger group at a specified rate.

S counts a number of pennies cued by T from a larger group (i.e., more than amount cued) at a specified rate.

Step 1 - S counts and labels or gestures worth of 1-5¢ from a larger group in order of increasing value at a specified rate.

Step 2 - S counts and labels or gestures worth of 1-5¢ from a larger group randomly presented at a specified rate.

Step 3 - S counts and labels or gestures worth of 6-10¢ from a larger group in order of increasing value at a specified rate.

Step 4 - S counts and labels or gestures worth of 6-10¢ from a larger group randomly presented at a specified rate.

Step 5 - S counts and labels or gestures worth of 1-10¢ from a larger group randomly presented at a specified rate.

Part 6 - Counting pennies on a worksheet and writing the answer.

S counts pennies (1-10¢) drawn or stamped (realistic replica) on a worksheet and indicates the amount counted by drawing a line to the appropriate numerical value or writing this amount.

Step 1 - S counts an array of pennies (randomly chosen from 1-10¢) drawn on a worksheet, then draws a line from the array to its corresponding numerical value.

Step 2 - S counts an array of pennies (randomly chosen from 1-10¢) drawn on a worksheet, then draws a line from the array to an object containing a price tag whose value corresponds to the amount counted.

Step 3 - S counts an array of pennies (randomly chosen from 1-10¢) drawn on a worksheet and indicates the value by writing down the numerical component with the cents (or decimal) sign provided.

Step 4 - S counts an array of pennies (randomly chosen from 1-10¢) drawn on a worksheet and indicates the value by writing down the numerical component and the cents (or decimal) sign.

Step 5 - S labels or gestures the worth of a numeral written in cents (or decimal) form (e.g., 8¢, $.08) on a worksheet and, using a stamp, marks the number of pennies which corresponds to this value in the space provided.

Phase IV: Labeling the price of items; choosing an item to buy; making purchases at a simulated classroom store and actual community stores.

Part 1 - Labeling the worth of items with and without price tags.

S labels or gestures the worth of an item (randomly varied 1-10¢) with a price tag when T presents the item and asks, "What is this worth?" or "How much does this cost?" For items without a price tag, S presents the item to T and asks, "How much does this cost?"

Step 1 - Labeling or gesturing the worth of items with price tags.

Step 2 - Determining the worth of items without price tags.

Part 2 - Introduction to the function of grocery stores through the use of a simulated classroom store.

S determines that she/he would like to make a purchase (1-10¢ item). S takes money and goes to simulated classroom store; finds appropriate area (department) where item is shelved; selects item she/he has enough money to purchase; locates check-out lane; pays for item; and determines what to do with item purchased (e.g., consume it, store it, share with another, etc.).

Part 3 - Making a purchase at an actual community store.

S takes money from his/her classroom "bank" (1-10¢); goes to a community store; chooses an item; determines if he/she has enough money; and, if so, purchases the item.

Step 1 - S goes to a community store with T and makes a purchase.

Step 2 - S goes to a community store with T, but enters store and makes a purchase without T.

METHODOLOGY

Students (Ss)

Ten Ss were involved in the program over a two-year period. The program was taught to seven Ss the first year. Four Ss of the original seven remained the second year and three additional Ss were added to the class. These three new Ss began instruction on the task during the second year. The ten Ss were enrolled in a public school program for trainable level retarded students. Ss ranged in chronological age at the time they started the program from 6 years, 9 months to 11 years, 10 months ($\overline{X}$ = 8.4) and in MA from 3 years, 6 months to 4 years, 6 months ($\overline{X}$ = 4.3).

Psychological reports indicated that the Ss were functioning at levels of retardation ranging from moderate to severe. Physical disabilities included: visual impairments, cleft palate, heart defect, leg braces, and seizure patterns.

Most of the Ss had been enrolled in an education facility or day care center since the age of 3. They were all ambulatory, verbally and motorically imitative, and had basic skills in reading, language, math, and self-help. However, they manifested visual and behavioral problems and had deficits in most cognitive, motor and language areas. In short, these students needed school programs offering highly systematic and intensive intervention to foster their skill development.

Setting

The seven Ss involved in the program at a given time were divided into two instructional groups (of three and four). Each group participated in the program for at least 20 minutes per day, two to three days per week. The groups were seated at tables on opposite sides of the room and were instructed by T and a university practicum student. In addition, during the latter phases instruction took place at a simulated store in the classroom, and at stores in the community.

Materials

Verbal Ss:

various amounts of U.S. coins (pennies through quarters); various items for purchasing (worth 1-10¢); pictures of items for purchasing; simulated classroom store made of cardboard painted white and red (6 feet x 3 feet x 3 feet); money worksheets; and containers for Ss' banks

Nonverbal Ss:

same as verbal Ss with addition that "money-counters" (explained in instructional program section) are added.

Instructional Program

Phase I: S acquires the skills necessary to sort and label U.S. pennies, nickels, dimes, quarters.

Part 1 - Sorting money from things that are not money.

S correctly discriminates between objects that are money (i.e., U.S. coins of 1 - 25¢ denominations) and objects that are not money across at least three cues from T.

Materials:

Verbal Ss - assorted number of U.S. pennies, nickels, dimes and quarters; assorted objects that are not money, such as candy, toys, clothing, canned food items and classroom supplies, that Ss have previously labeled (some of which are items S typically plays with); red and white pieces of construction paper 8½ x 11.

Nonverbal Ss - same as above, except that non-money objects are those that Ss have demonstrated receptive knowledge of by pointing to them when cued.

Data Collection:

Verbal Ss - Whether conducting baseline or teaching trials, responses 1 through 5 should be recorded. Criterion performance during teaching would be the correct occurrence of responses 1-5 on three successive occasions. Baseline would consist of presenting cues 1-5 for two consecutive trials.

Nonverbal Ss - Data should be collected in the same way as described above for verbal Ss with the exception that nonverbal responses 1-4 should be recorded.

Sequence of Cues and Responses for Verbal Ss:

	Teacher Cues		Student Responses
1.	T presents Ss with an assorted array of coins. After Ss have examined the coins T says, "This is money. Touch (pick up, give me) money."	1.	Each S touches (picks up or gives T) some of the coins in the array when cued.
2.	Pointing at the array of coins T says, "What are these called?"	2.	"Money"
3.	With the coins present but no longer in front of Ss, T places an assorted array of	3.	Each S labels each item cued by T; each S answers "No" to second cue.

Teacher Cues	Student Responses
non-money objects in front of S. After Ss have examined the objects, T points to each object individually and says, "What is this? Is this money?"	
4. T places an array of coins and a separate array of non-money objects in front of S and says, "We're going to play a game. Let's see if you can beat me. When I say 'money', see if you can touch this pile (T touches coins) before I do. When I say 'not money', see if you can touch this pile before I do (T touches mon-money objects). Ready, go (T randomly says 'money' or 'not money' until each S has had five trials with each cue)."	4. **Each S touches the array of coins or the array of non-money objects as cued.**
5. T presents S with a mixed array of assorted coins and non-money objects and says, "Put all the money here (points to a white piece of paper). Put all the things that are not money here (points to a red piece of paper)."	5. **Each S places all coins on the white paper and all non-money objects on the red.**

Sequence of Cues and Responses for Nonverbal Ss:

Teacher Cues	
1. T presents Ss with an assorted array of	1. Each S touches, picks up or give T some of

	Teacher Cues		Student Responses
	coins. After Ss have examined the coins T says, "This is money. Touch (pick up, give me) money."		the coins in the array when cued.
2.	With the coins present but no longer in front of Ss, T places an assorted array of non-money objects in front of Ss. After Ss have examined the objects, T points to each object individually and says, "Point to (touch, give me) (name of object). Is this money?"	2.	Each S points to (touches or gives T) object cued; each S then gestures "No" to the second part of the cue.
3.	Same as cue 4 for verbal Ss (above).	3.	Same as response 4 for verbal Ss (above).
4.	Same as cue 5 for verbal Ss (above).	4.	Same as response 5 for verbal Ss (above).

Part 2 - Sorting one coin from another.

On cue from T, each S consistently places each coin she/he is given on top of or near a sample coin that has been provided and identified by T according to the following sequence:

Step 1 - Sorting pennies from nickels.

Materials:
Verbal Ss - six pennies and six nickels
Nonverbal Ss - same as for verbal Ss.

Data Collection:
Verbal Ss - Whether during baseline or teaching trials, data should be collected for response 3. Criterion performance for teaching would be three correct occurrences of response 3, successively (i.e., sorting five pennies and five nickels three times in succession). Baseline would consist of the presentation of cues 1-3 on two consecutive occasions.
Nonverbal Ss - Data collected same as for verbal Ss above.

Sequence of Cues and Responses for Verbal Ss:

Teacher Cues	Student Responses
1. *T* holds up a penny and says to *S*, "This is (here is) a *penny* (*T* then gives *S* the penny for examination before placing it in front of *S*)."	1. *S* looks at penny *T* is holding and examines it when *T* gives it to him/her.
2. *T* holds up a nickel and says to *S*, "This is (here is) a *nickel* (*T* then gives *S* the nickel for examination before placing it in front of *S*)."	2. *S* looks at nickel *T* is holding and examines it when *T* gives it to him/her.
3. *T* holds up another *penny* or *nickel* (randomly varied for 5 presentations of each coin) and says, "This is (here is) a penny/nickel. Put it on another penny/nickel (*T* then hands *S* penny/nickel)."	3. *S* takes penny/nickel and places it on top or next to the sample penny/nickel.

Note: Continue until *S* has sorted five pennies and five nickels, randomly presented.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Cues and responses are the same as for verbal *S*s (see previous section).

Step 2 - Sorting pennies, nickels and dimes.

Materials:

Verbal Ss - Six pennies, six nickels, six dimes.

Nonverbal Ss - Same as for verbal *S*s.

Data Collection:

Verbal Ss - Whether during baseline or teaching trials, data should be collected for response 2. Criterion performance for teaching would be three correct occurrences of response 2 successively (i.e., sorting five pennies, five nickels and five dimes, three times in succession). Baseline would consist of the presentation of cues 1 and 2 on two consecutive occasions.

Nonverbal Ss - Data collected same as for verbal Ss above.

Sequence of Cues and Responses for Verbal Ss:

Teacher Cues	Student Responses
1. T holds up a penny (nickel or dime) and says to S, "This is (or here is) a penny (nickel or dime)." T then gives S the coin to examine before placing it in front of S.[3]	1. S looks at penny (nickel or dime) and examines it when given to S by T.
2. T holds up another penny (nickel or dime, randomly varied for five presentations of each coin) and says, "This is (or here is) a penny (dime or nickel). Put it on another penny (dime or nickel)." T hands S the coin.	2. S takes penny (dime or nickel) and places it on top or next to the sample penny (dime or nickel).

Note: Continue until S has sorted five pennies, five nickels and five dimes.

Step 3 - Sorting pennies, nickels, dimes and quarters.

Materials:
Verbal Ss - Six pennies, six nickels, six dimes and six quarters.

Nonverbal Ss - Same as for verbal Ss.

Data Collection:
Verbal Ss - Same as in Step 2.

Nonverbal Ss - Same as in Step 2.

Sequence of Cues and Responses for Verbal Ss:

Note: Same as Step 2, except that five trials with quarters are randomly interspersed among the five for nickels, pennies and dimes.

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[3] Randomize the order of presenting each coin and the placement of each coin in front of S. Placement could be varied in an easy-to-hard fashion through manipulating the size dimension by first arranging the sample nickel between the dime and penny, and later producing other combinations of the three coins.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as Step 2, except that five trials with quarters are randomly interspersed among the five for nickels, pennies and dimes.

Part 3 - Sorting one coin from another from a group of mixed coins.

This part is the same as Part 2, following the same sequence of steps, except that S is given all the coins that she/he is required to sort at the start of each trial. In addition, the sample coins are still provided. The chief difference, then, is that S is not handed each coin to be sorted by T in succession.

Step 1 - Sorting pennies from nickels.

Step 2 - Sorting pennies, nickels and dimes.

Step 3 - Sorting pennies, nickels, dimes and quarters.

Materials (Steps 1-3):
Verbal Ss - Six pennies, six dimes, six nickels, six quarters.

Nonverbal Ss - Same as for verbal Ss.

Data Collection (Steps 1-3):
Verbal Ss - Whether during baseline or teaching, data should be collected for response 2. Criterion performance for teaching would be three correct occurrences of response 2, successively (i.e., sorting five pennies, five nickels (Step 1), five dimes (Step 2), and five quarters (Step 3), three times in succession). Baseline would consist of the presentation of cues 1 and 2 on two consecutive occasions.

Nonverbal Ss - Same as for verbal Ss.

Sequence of Cues and Responses for Verbal Ss (Steps 1-3):

Teacher Cues	Student Responses
1. T holds up a penny (nickel, dime or quarter; type of coins used dependent upon step being taught) and says to S, "This is (or here is) a penny (nickel, dime or quarter)."	1. S looks at penny (dime, nickel or quarter) and examines it when T gives it to him/her.

Teacher Cues	Student Responses
T then gives S the coin to examine before placing it in front of S.[4]	
2. T gives S an assortment of five pennies and five nickels (five dimes, five quarters; dependent upon step) and says, "Put (place, stack) all the pennies here (points to sample penny), put (place, stack) all the nickels here (points to sample nickel; repeat same cue for dimes and quarters when applicable).	2. S puts all coins from the assortment given on or near the appropriate sample provided.

Sequence of Cues and Responses for Nonverbal Ss (Steps 1-3):

Note: Same as for verbal Ss.

Part 4 - Matching coins.

T holds up a coin (randomly chosen, determined by step - see below), labels it and asks S to touch another coin that is the same. S matches the coin by touching the one that is the same from an array in front of S.

Step 1 - Matching pennies and nickels.

Materials:
Verbal Ss - Two pennies, two nickels.

Nonverbal Ss - Same as for verbal Ss.

Data Collection:
Verbal Ss - Whether during baseline or teaching data should be collected for response 1. Criterion performance during teaching would be five correct matching responses for pennies and five for nickels, three times in succession. Baseline would consist of the presentation of cue 1 ten times (five times for pennies, five times for nickels, randomly varied) on two consecutive occasions.

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[4] Footnote 3 from Part 2 applicable.

Nonverbal Ss - Same as verbal Ss.

Sequence of Cues and Responses for Verbal Ss:

Teacher Cues	Student Responses
1. T places a penny and a nickel in front of Ss, holds up a penny (nickel, randomly varied) and says, "Here is (this is) a penny (nickel). Touch (pick up, give me) another penny (nickel)."	1. S touches (picks up or gives T) the coin cued from the array.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as for verbal Ss.

Step 2 - Matching pennies, nickels and dimes.

Note: Materials, data collection, cues, and responses are the same as in Step 1 for both verbal and nonverbal Ss with the addition of dimes.

Step 3 - Matching pennies, nickels, dimes and quarters.

Note: Materials, data collection, cues, and responses are the same as Step 2 for both verbal and nonverbal Ss with the exception that quarters are added.

Part 5 - Labeling coins.

When asked for the name, S correctly labels the coin that T is holding.

Step 1 - Labeling pennies.

Materials:
Verbal Ss - One penny.

Nonverbal Ss - Same as for verbal Ss.

Data Collection:
Verbal Ss - Whether during baseline or teaching, the occurrence of response 1 should be recorded. Criterion performance for teaching would be the occurrence of response 1 on five occasions, three times in succession. Baseline would consist of five presentations of cue 1, two consecutive times.

Nonverbal Ss - Same as for verbal Ss.

Sequence of Cues and Responses for Verbal Ss:

Teacher Cues	Student Responses
1. T holds up a penny and says, "What is this called (What is the name of this coin? Tell me what this is.)?"	1. S says, "penny."

Note: Repeat cue five times.

Sequence of Cues and Responses for Nonverbal Ss:[5]

Teacher Cues	Student Responses
1. T gives S a penny and says, "Point to (give me, touch) a penny."	1. S points to (gives T or touches) a penny.[6]

Note: Repeat cue 1, five times.

Step 2 - Labeling nickels.

Note: Same data collection, cues, and responses as in Step 1 for both verbal and nonverbal Ss. Material used is one nickel. Substitute the word nickel for penny in Step 1.

Step 3 - Labeling pennies and nickels when presented randomly.

Note: Same data collection, cues, and responses as in Step 1 for both verbal and nonverbal Ss. Materials include one penny and one nickel. Randomly alternate the words nickel or penny whenever penny occurs in Step 1 until S has labeled each five times.

Step 4 - Labeling dimes.

Note: Same as Step 1 except that the word dime should be substituted whenever penny appears for both verbal and nonverbal Ss.

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[5] The cues for nonverbal Ss who can sign words should be the same as for verbal Ss throughout the program.

[6] The response here is very similar to that in Part 4. It was added because the authors considered it necessary to verify that nonverbal Ss could discriminate a particular coin solely on the basis of a verbal cue. It should be noted that Part 4 also included a sample coin as an additional cue.

Step 5 - Labeling pennies, nickels and dimes when randomly presented.

> Note: Same as Step 1 except that the word nickel and dime should be randomly interspersed with penny. S should label each of these three coins five times on three consecutive occasions.

Step 6 - Labeling quarters.

> Note: Same as Step 1 except that the word quarter replaces penny.

Step 7 - Labeling penny, nickel, dime and quarter when randomly presented.

> Note: Same as Step 1 except that the words nickel, dime and quarter should be randomly interchanged with penny. S should label each of these four coins five times on three consecutive occasions.

Phase II: Ss are taught to label or gesturally indicate a penny's worth, to make rudimentary discriminations between items worth a penny and items worth more than one cent, to count by pennies, to read price tags, and to purchase items with pennies.

Part 1 - Labeling pennies.

S labels or gesturally indicates a penny when T presents S with a penny and the cue, "What is the name of this coin? Name this coin." or other appropriate cue variations.

Materials:
Verbal Ss - One penny.

Nonverbal Ss - One penny.

Data Collection:
Verbal Ss - Whether during baseline or teaching, response 1 should be recorded. Criterion performance would include five correct occurrences of response 1 three times in succession. Baseline would consist of five presentations of cue 1 on two consecutive occasions.

Nonverbal Ss - Same as for verbal Ss.

Sequence of Cues and Responses for Verbal Ss:

Teacher Cues	Student Responses
1. T holds up a penny and says, "What is the name of this coin (What is it called? Name this coin)?"	1. S says, "penny."

Note: Repeat cue five times.

Sequence of Cues and Responses for Nonverbal Ss:

Teacher Cues	Student Responses
1. T gives S a penny, nickel, dime and quarter and says, "Point to (give me, touch) a penny."	1. S points to (gives T or touches) a penny.

Note: Repeat cue five times.

Part 2 - Labeling penny - worth.

S labels or gesturally indicates that a penny is worth one cent when T holds up a penny and asks, "How much is a penny worth? What is this worth?" or other appropriate cue variations.

Materials:
Verbal Ss - One penny

Nonverbal Ss - One penny and money counters.

Data Collection:
Verbal Ss - Whether during baseline or teaching, responses 1 and 2 should be recorded. Criterion would be five correct occurrences of both responses three times in succession. Baseline would consist of five presentations of cues 1 and 2 on two consecutive occasions.

Nonverbal Ss - Same as verbal except responses 1 and 3 are recorded.

Sequence of Cues and Responses for Verbal Ss:

Teacher Cues	Student Responses
1. T holds up a penny and says, "What is the name of this coin (What is it called? Name this coin.)?"	1. S says, "penny."
2. Holding a penny, T says, "What is this worth (How much is a penny worth? How much is this worth?)?"[7]	2. S says, "one cent."

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[7] The order of presentation of these cues should be randomly varied so that cue 2 occurs before cue 1 on occasion. This would increase the probability that S is responding to the essential words in the verbal cue and not simply to the sequence in which they are presented.

Note: Repeat each cue five times.

Sequence of Cues and Responses for Nonverbal Ss:

Teacher Cues	Student Responses
1. T gives S a penny (nickel, dime, and quarter) and says, "Point to (give me, touch) a penny."	1. S points to (gives T or touches) a penny.
2. T holds up a money counter and says, "This is a money counter. It tells you how much pennies are worth. One penny (T holds up a penny) is worth one cent (T points to one cent on the sample money counter)."[8]	2. No response required.
3. Holding up a penny, T says, "Point to (touch, show me) how much one penny is worth."[9]	3. S touches (points to, shows T) the one cent symbol on his/her money counter.

Part 3 - Labeling items worth one cent.

S labels or gesturally indicates items that are worth one cent when T says, "What can you buy with a penny? What costs a penny.[2] Tell me some things that are worth one cent." with and without a chart displaying pictures of one cent items.

Step 1 - With chart.

Materials:

Verbal Ss - Chart displaying pictures of items worth one cent.

Nonverbal Ss - Chart displaying pictures of items worth one cent.

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[8] Fade eventually.

[9] Randomly vary the presentation of cues 1 and 3. See footnote 7 for explanation of this constraint.

Data Collection:

Verbal Ss - Whether during baseline or teaching, response 1 should be recorded. Criterion performance would include labeling at least five items on the chart three times in succession. Baseline would include the presentation of cue 1 five times on two consecutive occasions.

Nonverbal Ss - Same as for verbal Ss.

Sequence of Cues and Responses for Verbal Ss:

Teacher Cues	Student Responses
1. T holds up a chart of one cent items and says, "What can you buy with a penny (What costs a penny? Tell me some things that are worth one cent)?"	1. S names at least five items on the chart.

Sequence of Cues and Responses for Nonverbal Ss:

Teacher Cues	Student Responses
1. T holds up a chart of one cent items and says, "Point to (touch, show me) things that cost a penny (are worth one cent)."	1. S points to (touches or shows T) at least five items on the chart.

Step 2 - Without chart.

Materials:

Verbal Ss - No materials necessary.

Nonverbal Ss - Pictures of the same one cent items that appeared on the chart in Step 1; pictures of items that are worth more than one cent.

Data Collection:

Verbal Ss - Same as Step 1 except that chart is not used.

Nonverbal Ss - Same as Step 1 except that the pictures replace the chart.

Sequence of Cues and Responses for Verbal Ss:

Note: Same as Step 1 except that T does not present chart.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as Step 1 except that T presents S with pictures (See materials, this section) instead of the chart.

Part 4 - Purchasing an item worth one cent from an array containing one item worth one cent and others worth more than one cent.

S takes one penny from T, chooses the one cent item from the array, and makes a purchase (Note: S is only allowed to keep one item purchased per session as a practical constraint).

Materials:

Verbal Ss - One penny, at least five items with price tags[10] (one of which is labeled one cent).

Nonverbal Ss - An assortment of pennies, nickels, dimes and quarters, at least five items with price tags (one of which is labeled one cent).

Data Collection:

Verbal Ss - Whether during baseline or teaching, responses 1, 3, 4, 6 and 7 should be recorded. Criterion performance would include five correct occurrences of responses 1, 3, 4, 6 and 7 three times in succession. Baseline would involve the presentation of cues 1, 3, 4, 6 and 7 five times on two consecutive occasions.

Nonverbal Ss - Data should be collected the same as for verbal Ss except that responses 2, 3, 4, 6 and 7 should be recorded.

Sequence of Cues and Responses for Verbal Ss:

Teacher Cues	Student Responses
1. T holds out a handful of pennies and says to S, "We are going to buy something. What do you need (What do you have to have?)?"	1. "Penny, money"

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[10] Since number recognition up to or above 5 is a prerequisite skill for this program, it was not considered necessary to teach the exact price tag values at this point. At this point price tags simply function as cues for the gross discrimination indicating all one cent items and all items that are not one cent.

Teacher Cues	Student Responses
2. "Take one penny."[11]	2. S complies.
3. T points to the items in the array and says, "Which one can you buy with a penny?"	3. S names the penny item.
4. T holds out his/her hand and says, "That will be one cent please."	4. S gives T a penny.
5. "You had one cent. That was enough money to buy the (T names item purchased)."	5. No response required.
6. T points to each remaining item and says, "Does this cost one cent?"	6. "No"
7. Pointing to the same item T says, "Can you buy this with a penny?"	7. "No"

Note: Repeat until S has purchased five items.

Sequence of Cues and Responses for Nonverbal Ss:

Teacher Cues	Student Responses
1. T places an assortment of pennies, nickels, dimes and quarters in front of S and says, "We are going to buy something."	1. No response required.
2. "Take (pick up) one penny."[12]	2. S takes (picks up) one of the pennies from the array.

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[11] Cues 2 and 3 should be faded to facilitate self-initiation of the response.

[12] Fade cues 2 and 3 to facilitate self-initiation of these responses.

Teacher Cues	Student Responses
3. T points to the items in the array and says, "Pick up (take, buy) the one that costs (is worth) one cent."	3. S picks up the one cent item.
4. T holds out his/her hand and says, "That will be one cent please (one cent please)."	4. S gives T one cent.
5. You had one cent. That was enough money to buy the (T names item purchased)."	5. No response required.
6. T points to each remaining item and says, "Does this cost one cent?"	6. Gestures "no"
7. Pointing to the same item T says, "Can you buy this with a penny?"	7. Gestures "no"

Note: Repeat until S has purchased five items.

Part 5 - Purchasing an item worth one cent from an array containing two items worth one cent and others worth more than one cent.

S asks for one penny from T, chooses a one cent item (all items have price tags) from the array and makes a purchase (Note: S is only allowed to keep one item per session as a practical constraint).

Materials:

Verbal Ss - One penny; at least five items with price tags (two of which are labeled one cent).

Nonverbal Ss - An assortment of pennies, nickels, dimes and quarters; at least five items with price tags (two of which are labeled one cent).

Data Collection:

Verbal Ss - Whether during baseline or teaching, responses 1, 3, 4, 5 and 7 should be recorded. Criterion performance would include five correct occurrences of responses 1, 3, 4, 5 and 7 three times in succession. Baseline would consist of the presentation of cues 1, 3, 4, 5 and 7 on two consecutive occasions.

Nonverbal Ss - Same as for verbal Ss except that responses 2, 3, 4, 5, 7 are recorded.

Sequence of Cues and Responses for Verbal Ss:

Teacher Cues	Student Responses
1. T holds out a handful of pennies and says to S, "We are going to buy something. What do you need? What do you have to have?"	1. "Penny, money"
2. T holds out a handful of pennies and says, "Take one."[13]	2. S complies.
3. T points to the items in the array and says, "Which ones can you buy with a penny?"	3. S labels all penny items.
4. Pointing to the array T says, "Which (penny item, thing that costs a penny) would you like to buy?"	4. S chooses one penny item.
5. T holds out his/her hand and says, "That will be one cent please."	5. S gives T a penny.
6. "You had one cent. That was enough to buy the (T names item purchased)."	6. No response required.
7. Pointing to the same item, T says, "Can you buy this with a penny?"	7. "Yes" or "No" depending upon the item.

Note: Continue until S makes five purchases.

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[13] Verbal cues 2, 3 and 4 should be faded so that S initiates own buying behavior.

Sequence of Cues and Responses for Nonverbal Ss:

1.	T places an assortment of pennies, nickels, dimes, and quarters in front of S and says, "We are going to buy something."	1.	No response required.
2.	"Pick up (take) one penny."[14]	2.	S picks up (takes) one of the pennies from the array.
3.	T points to the items in the array and says, "Point to (touch, show me) the ones that cost (are worth) one cent."	3.	S points to (touches or shows T) the two one cent items.
4.	"Buy (pick up, take) one that costs one cent."	4.	S chooses one of the two one cent items.
5.	T holds out his/her hand and says, "That will be one cent please (one cent please)."	5.	S gives T one cent.
6.	"You had one cent. That was enough money to buy the (T names item purchased)."	6.	No response required.
7.	T points to each remaining item and says, "Can you buy this with a penny?"	7.	Gestures "yes" or "no" depending upon item T points to.

Note: Continue until S makes five purchases.

Part 6 - Purchasing an item worth one cent from an array containing either one or two penny items, or determining that a penny item cannot be purchased when there is no penny item in the array.

Same as Parts 4 and 5, except that T alternates trials so that on some trials there is one penny item, some two and some no items worth one cent.

Materials:
Verbal Ss - Same as Parts 4 and 5.

Nonverbal Ss - Same as Parts 4 and 5.

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[14] Fade cues 2, 3 and 4 to facilitate self-initiation.

Data Collection:

Verbal Ss -

a. One item - use procedures from Part 4.
b. Two items - use procedures from Part 5.
c. No items - use procedures from Part 5; collect data only on responses 1, 2, 3 and 7.

Nonverbal Ss - Same as above.

Sequence of Cues and Responses for Verbal Ss:

Note:

a. One item - use verbal cues and responses from Part 4.
b. Two items - use verbal cues and responses from Part 5.
c. No item - use only verbal cues and responses 1, 2, 3 and 7 from Part 5.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as above, except use nonverbal cues and responses from the respective parts.

Phase III: Labeling the worth of various amounts of pennies; counting out a given number of pennies; counting out a specified number of pennies from a larger group; counting pennies at a specified rate; counting pennies through the use of worksheets.

Part 1 - Labeling worth of various amounts of pennies.

S labels or gesturally indicates the worth of pennies, varying between 1 and 10 cents, after T verbally states the number of pennies that have been placed in front of S.

Step 1 - S labels or gestures worth of 1-5¢ in order of increasing value.

Materials:

Verbal Ss - 1-5 pennies.

Nonverbal Ss - 1-5 pennies, money counters.

Data Collection:

Verbal Ss - Whether during baseline or teaching, response 2 should be recorded. Criterion performance would be three labeling responses for each amount from 1-5¢ three times in succession. Baseline would consist of the presentation of cues 1 and 2 three times for each amount from 1-5¢ on two consecutive occasions.

Nonverbal Ss - Same as for verbal Ss.

Sequence of Cues and Responses for Verbal Ss:

Teacher Cues	Student Responses
1. T places a designated amount of pennies from 1-5¢ in front of S and says, "What is this (are these)?"	1. "Pennies, money"
2. "There are (number in front of S) pennies. How much are they worth (How many cents?)?"[15]	2. "___ cents"

Note: Continue until S has responded three times for each amount from 1-5¢.

Sequence of Cues and Responses for Nonverbal Ss:

Teacher Cues	Student Responses
1. "Take out your money counters."	1. S places money counter on flat surface.
2. T places a designated number of pennies from 1-5¢ on the appropriate circles on the money counter and says, "There are (number of pennies on counter) pennies? Point to (touch, show me) how much they are worth (how many cents)."	2. S points to (touches, shows T) the number directly above the last penny placed on the card.

Note: Continue until S has responded three times for each amount from 1-5¢.

Step 2 - S labels or gestures worth of 1-5¢ randomly presented.

Materials:
Verbal Ss - Same as Step 1.

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[15] If S answered incorrectly here, the authors found it beneficial to have T count each penny and then restate cue #2. If S was still incorrect, T modeled the correct response.

Nonverbal Ss - Same as Step 1.

Data Collection:
Verbal Ss - Same as Step 1.

Nonverbal Ss - Same as Step 1.

Sequence of Cues and Responses for Verbal Ss:

Note: Same as Step 1 except that amount is randomly chosen by T.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as Step 1 except that amount is randomly chosen by T.

Step 3 - S labels or gestures worth 6-10¢ in order of increasing value.

Materials:
Verbal Ss - 6-10 pennies.

Nonverbal Ss - 6-10 pennies, money counters.

Data Collection:
Verbal Ss - Same as Step 1 except stimuli are 6-10 pennies.

Nonverbal Ss - Same as Step 1 except stimuli are 6-10 pennies.

Sequence of Cues and Responses for Verbal Ss:

Note: Same as Step 1; substitute 6-10¢ for 1-5¢.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as Step 1; substitute 6-10¢ for 1-5¢.

Step 4 - S labels or gestures worth of 6-10¢ randomly presented.

Materials:
Verbal Ss - Same as Step 3.

Nonverbal Ss - Same as Step 3

Data Collection:
Verbal Ss - Same as Step 3.

Nonverbal Ss - Same as Step 3.

Sequence of Cues and Responses for Verbal Ss:

Note: Same as Step 3 except that amount is randomly chosen by T.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as Step 3 except that amount is randomly chosen by T.

Step 5 - S labels or gestures worth of 1-10¢ randomly presented.

Materials:
Verbal Ss - 1-10 pennies.

Nonverbal Ss - 1-10 pennies, money counters.

Data Collection:
Verbal Ss - Same as Step 1 except stimuli are 1-10 pennies.

Nonverbal Ss - Same as Step 1 except stimuli are 1-10 pennies.

Sequence of Cues and Responses for Verbal Ss:

Note: Same as Step 1; substitute 1-10¢ for 1-5¢ presented randomly.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as Step 1; substitute 1-10¢ for 1-5¢ presented randomly.

Part 2 - Counting a given number of pennies.

When presented with a given number of pennies, S should count each penny, label the amount, specify the value of the amount counted, and make occasional purchases.

Step 1 - S counts and labels or gestures worth of 1-5¢ in order of increasing value.

Materials:
Verbal Ss - 1-5 pennies, items varying in price between 1 and 15 cents.

Nonverbal Ss - 1-5 pennies, items varying in price between 1 and 15 cents, money counters.

Data Collection:

Verbal Ss - Whether during baseline or teaching, responses 2, 3, 4, 5 and 7 should be recorded. Criterion performance would include three trials each with an item to purchase and without one to purchase for responses 2, 3, 4, 5 and 7 three times in succession. Baseline would consist of three presentations of cues 1-7 with and without items to purchase on two consecutive occasions.

Nonverbal Ss - Same as verbal Ss except record responses 3, 4, 5, 6 and 8.

Sequence of Cues and Responses for Verbal Ss:

Teacher Cues	Student Responses
1. T takes one penny from a pile of pennies (1-5, depending on trial) that has been placed in front of S and asks, "What is this?"	1. "Penny, money"
2. "Count the pennies."	2. S counts pennies without assistance by pushing each penny away from the pile while simultaneously verbally labeling each in order of increasing number (e.g., "one, two, three...").[16]
3. "How much are they worth?"	3. S labels worth.
4. T points to the array of items. Each item has the same amount	4. "___ cents"

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[16] To insure that S does not become stimulus bound to counting pennies in a row on a flat surface the following are some suggested response variations that could be implemented on alternate trials:
a. Counting in vertical rows
b. Counting in horizontal rows
c. Counting from one hand to another
d. Counting from one hand to table
e. Counting by visually tracking without touching each coin
f. Counting each coin in the pile without moving them, i.e., touch each
g. Counting each as S takes the pennies out of a wallet, purse, or pocket.

	Teacher Cues		Student Responses
	written on a price tag. T says, "How much are these worth?"[17]		
5.	"Do you have enough money for one (Can you buy one? Do you have enough for one?)?"	5.	"Yes" or "No" (varies according to items in array.
6.	"Choose one."[18]	6.	S chooses an item.
7.	"That will be ___ cents please."[19]	7.	S gives T amount cued and keeps item.[20]

Note: Continue until S has had three trials with purchasing and three without.

Sequence of Cues and Responses for Nonverbal Ss:

	Teacher Cues		Student Responses
1.	"Take out your money counters."	1.	S takes out money counter.
2.	T puts a number of pennies within S's view and says, "We're going to count pennies just like this (T places each penny on the circle on the money counter starting at the one-cent circle)."	2.	S observes T.

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[17] On some trials the value of all the items should equal the amount of pennies S counted, on others the value of all the items should not.

[18] Cues 4, 5 and 6 should eventually be faded.

[19] Cues 6 and 7 were presented on those trials where the items were worth more than the number of pennies S had counted, but only if S answered cue 8 correctly. If S answered that he/she had enough when it was not true, T allowed S to attempt to make the purchase and fail to help concretize the ramifications of the enough/not enough concept when making a purchase.

[20] When the session is completed, it is suggested that S be allowed to keep only one of the items purchased as a practical constraint.

Teacher Cues	Student Responses
3. T gives S a designated number of pennies from 1-5¢ and says, "Count them."	3. S counts the pennies by placing each one on a circle on the money counter starting at one cent and ending when the last penny is on the money counter.
4. "Point to (touch, show me) how much they are worth."	4. S points to (touches, shows T) the number above the last penny placed on counter.
5. T points to the array of items. Each item has the same amount written on a price tag. T says, "Show me (touch, point to) on your money counter how much these cost (are worth)."[21]	5. S touches (points to, shows T) the appropriate amount on money counter.
6. "Do you have enough money for one (Can you buy one? Do you have enough for one?)?"	6. Gestures "yes" or "no" (varies with items in array).
7. "Choose one."[22]	7. S chooses an item.
8. "That will be ___ cents please."[23]	8. S gives T amount cued.[24]

Note: Continue until S has had three trials with purchasing and three without.

Step 2 - S counts and labels or gestures worth of 1-5¢ randomly presented.

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[21] See footnote 17.

[22] Fade cues 4, 5, 6 and 7 eventually regarding self-initiation.

[23] See footnote 19.

[24] See footnote 20.

Materials:
Verbal Ss - Same as Step 1.

Nonverbal Ss - Same as Step 1.

Data Collection:
Verbal Ss - Same as Step 1.

Nonverbal Ss - Same as Step 1.

Sequence of Cues and Responses for Verbal Ss:

Note: Same as Step 1 except amount to be counted is randomly presented.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as Step 1 except amount to be counted is randomly presented.

Step 3 - S counts and labels or gestures worth of 6-10¢ in order of increasing value.

Materials:
Verbal Ss - 6-10 pennies, items priced between 1-15¢.

Nonverbal Ss - 6-10 pennies, items priced between 1-15¢, money counters.

Data Collection:
Verbal Ss - Same as Step 1 except stimuli are 6-10 pennies.

Nonverbal Ss - Same as Step 1 except stimuli are 6-10 pennies.

Sequence of Cues and Responses for Verbal Ss:

Note: Same as Step 1; substitute 6-10¢ for 1-5¢.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as Step 1; substitute 6-10¢ for 1-5¢.

Step 4 - S counts and labels or gestures worth of 6-10¢ randomly presented.

Materials:
Verbal Ss - Same as Step 3.

Nonverbal Ss - Same as Step 3.

Data Collection:
Verbal Ss - Same as Step 3.

Nonverbal Ss - Same as Step 3.

Sequence of Cues and Responses for Verbal Ss:

Note: Same as Step 3 except present 6-10¢ randomly.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as Step 3 except present 6-10¢ randomly.

Step 5 - S counts and labels or gestures worth of 1-10¢ randomly presented.

Materials:
Verbal Ss - 1-10 pennies, items priced between 1-15¢.

Nonverbal Ss - 1-10 pennies, items priced between 1-15¢, money counters.

Data Collection:
Verbal Ss - Same as Step 1 except stimuli are 1-10 pennies.

Nonverbal Ss - Same as Step 1 except stimuli are 1-10 pennies.

Sequence of Cues and Responses for Verbal Ss:

Note: Same as Step 1 except 1-10¢ presented randomly.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as Step 1 except 1-10¢ presented randomly.

Part 3[25] - Counting a given number of pennies at a specified rate.[26]

When presented with a given number of pennies, S should count each penny at a specified rate.

Step 1 - S counts pennies from 1-5¢ in order of increasing value at a specified rate.

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[25] Part 9 can be used as a drill for coin counting to increase S's speed. It does not represent a higher level of skill development from Part 8, and as such, it should probably be taught simultaneously with Part 8.

[26] T should determine a proficient rate of counting for each S which reflects any limitations presented by the individual's handicapping condition.

Materials:

Verbal Ss - 1-5 pennies.

Nonverbal Ss - 1-5 pennies, money counters.

Data Collection:

Verbal Ss - Whether during baseline or teaching, responses 2 and 3 should be recorded. Criterion performance would include counting each amount from 1-5¢ three times at a specified rate and labeling the worth of the pennies counted three times in succession. Baseline would consist of presenting cues 1-3 on two consecutive occasions.

Nonverbal Ss - Same as for verbal Ss.

Sequence of Cues and Responses for Verbal Ss:

Teacher Cues	Student Responses
1. T takes one penny from a pile of pennies (1-5, depending on trial) that has been placed in front of S and asks, "What is this?"	1. "Penny, money"
2. "We're going to play a game. Let's see if you can count all these pennies before I stop tapping the table (T demonstrates tapping). I won't tell you when I'm going to stop so you better count real fast. If you beat me - if you count all the pennies before I stop tapping, then you can (specify some possible reinforcer, e.g., free time, S gets to tap for another S, etc.). Get ready ... count."	2. S counts pennies without assistance by pushing each penny away from the pile while simultaneously verbally labeling each in order of increasing number (e.g., "one, two, three...").[27]

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[27] See footnote 16.

Teacher Cues	Student Responses
3. After S finishes counting T says, "How much are they worth?"	3. S labels worth.

Note: Continue until S counts each amount from 1-5¢ three times.

Sequence of Cues and Responses for Nonverbal Ss:

Teacher Cues	Student Responses
1. "Take out your money counters."	1. S takes out money counter.
2. T puts a number of pennies (between 1-5) in front of S and says, "We're going to play a game. Let's see if you can count all these pennies before I stop tapping the table (T demonstrates tapping). I won't tell you when I'm going to stop so you better count real fast. If you beat me - if you count all the pennies before I stop tapping, then you can (specify some possible reinforcer, e.g., free time, S gets to tap for another S, etc.). Get ready ... count."	2. S counts the pennies by placing each one on a circle on the money counter, starting at one cent and ending when the last penny is on the money counter.
3. When S finishes counting, T says, "Point to (touch, show me) how much they are worth."	3. S points to (touches, shows T) the number above the last penny on counter.

Note: Continue until S counts each amount from 1-5¢ three times.

Step 2 - S counts pennies from 1-5¢ randomly presented at a specified rate.

Materials:
Verbal Ss - Same as Step 1.

Nonverbal Ss - Same as Step 1.

Data Collection:
Verbal Ss - Same as Step 1.

Nonverbal Ss - Same as Step 1.

Sequence of Cues and Responses for Verbal Ss:

Note: Same as Step 1 except amounts 1-5¢ presented randomly.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as Step 1 except amounts 1-5¢ presented randomly.

Step 3 - S counts pennies from 6-10¢ in order of increasing value at a specified rate.

Materials:
Verbal Ss - 6-10 pennies.

Nonverbal Ss - 6-10 pennies, money counters.

Data Collection:
Verbal Ss - Same as Step 1 except that amounts from 6-10¢ are used as stimuli.

Nonverbal Ss - Same as Step 1 except that amounts from 6-10¢ are used as stimuli.

Sequence of Cues and Responses for Verbal Ss:

Note: Same as Step 1; substitute 6-10¢ for 1-5¢.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as Step 1; substitute 6-10¢ for 1-5¢.

Step 4 - S counts pennies from 6-10¢ randomly presented at a specified rate.

Materials:
Verbal Ss - Same as Step 3.

Nonverbal Ss - Same as Step 3.

Data Collection:
Verbal Ss - Same as Step 3.

Nonverbal Ss - Same as Step 3.

Sequence of Cues and Responses for Verbal Ss:

Note: Same as Step 3; randomize presentation of 6-10¢.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as Step 3; randomize presentation of 6-10¢.

Step 5 - S counts pennies from 1-10¢ randomly presented at a specified rate.

Materials:
Verbal Ss - 1-10 pennies.

Nonverbal Ss - 1-10 pennies, money counters.

Data Collection:
Verbal Ss - Same as Step 1 except stimuli pennies from 1-10¢ are used.

Nonverbal Ss - Same as Step 1 except stimuli pennies from 1-10¢ are used.

Sequence of Cues and Responses for Verbal Ss:

Note: Same as Step 1; substitute 1-10¢ for 1-5¢; present randomly.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as Step 1; substitute 1-10¢ for 1-5¢; present randomly.

Part 4 - Counting a number of pennies from a larger group.

S counts a number of pennies cued by T from a larger group of pennies (i.e., more than amount cued), specifies the value of the amount counted, and makes occasional purchases.

Step 1 - S counts and labels or gestures worth of 1-5¢ from a larger group in order of increasing value.

Materials:
Verbal Ss - 20 pennies, items varying in price between 1 and 15¢.

Nonverbal Ss - 20 pennies, items varying in price between 1 and 15¢, money counters.

Data Collection:

Verbal Ss - Whether during baseline or teaching, responses 2, 3, 4, 5 and 7 should be recorded. Criterion performance would include three trials each with an item to purchase and without an item to purchase for responses 2, 3, 4, 5 and 7 three times in succession. Baseline would consist of three presentations of cues 1-7 with and without items to purchase on two consecutive occasions.

Nonverbal Ss - Same as for verbal Ss.

Sequence of Cues and Responses for Verbal Ss:

Teacher Cues	Student Responses
1. T takes one penny from a group of 20 that has been placed in front of S and says, "What is this?"	1. "Penny, money"
2. "Count (1-5) cents."	2. S counts pennies without assistance by pushing each penny away from the pile while simultaneously verbally labeling each in order of increasing number (e.g., "one, two, three ...").[28]
3. "How much are they worth?"	3. S labels worth.
4. T points to the array of items. Each item has the same amount written on a price tag. T says, "How much are these worth?"[29]	4. "___ cents"
5. "Do you have enough money for one (Can you buy one? Do you have enough for one?)?"	5. "Yes" or "No" (varies according to items in array.
6. "Choose one."[30]	6. S chooses an item.

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[28] See footnote 16.

[29] See footnote 17.

[30] See footnote 18.

	Teacher Cues		Student Responses
7.	"That will be ___ cents please."[31]	7.	S gives T amount cued and keeps item.[32]

Note: Continue until S has had three trials with purchasing and three without.

Sequence of Cues and Responses for Nonverbal Ss:

	Teacher Cues		Student Responses
1.	"Take out your money counters."	1.	S takes out money counter.
2.	T puts 20 pennies within S's view and says, "Count (1-5) pennies."	2.	S counts the pennies by placing each one on a circle on the money counter, starting at one cent and ending when the last penny cued is on the money counter.
3.	"Point to (touch, show me) how much they are worth."	3.	S points to (touches, shows T) the number above the last penny placed on counter.
4.	T points to the array of items. Each item has the same amount written on a price tag. T says, "Show me (touch, point to) on your money counter how much these cost (are worth)."[33]	4.	S touches (points to, shows T) the appropriate amount on money counter.
5.	"Do you have enough money for one (Can you buy one? Do you have enough for one?)?"	5.	Gestures "Yes" or "No" (varies with items in array).
6.	"Choose one."[34]	6.	S chooses an item.

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[31] See footnote 19.

[32] See footnote 20.

[33] See footnote 17.

[34] Fade cues 4, 5 and 6 eventually regarding self-initiation.

Teacher Cues	Student Responses
7. "That will be ____ cents please."[35]	7. S gives T amount cued.[36]

Step 2 - S counts and labels or gestures worth of 1-5¢ from a larger group randomly presented.

Materials:
Verbal Ss - Same as Step 1.

Nonverbal Ss - Same as Step 1.

Data Collection:
Verbal Ss - Same as Step 1.

Nonverbal Ss - Same as Step 1.

Sequence of Cues and Responses for Verbal Ss:

Note: Same as Step 1; present 1-5¢ randomly.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as Step 1; present 1-5¢ randomly.

Step 3 - S counts and labels or gestures worth of 6-10¢ from a larger group in order of increasing value.

Materials:
Verbal Ss - Same as Step 1.

Nonverbal Ss - Same as Step 1.

Data Collection:
Verbal Ss - Same as Step 1 except 6-10¢ are used as stimuli.

Nonverbal Ss - Same as Step 1 except 6-10¢ are used as stimuli.

Sequence of Cues and Responses for Verbal Ss:

Note: Same as Step 1; substitute 6-10¢ for 1-5¢.

Sequence of Cues and Responses for Nonverbal Ss:

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[35] See footnote 19.

[36] See footnote 20.

Note: Same as Step 1; substitute 6-10¢ for 1-5¢.

Step 4 - S counts and labels or gestures worth of 6-10¢ from a larger group randomly presented.

Materials:
Verbal Ss - Same as Step 1.

Nonverbal Ss - Same as Step 1.

Data Collection:
Verbal Ss - Same as Step 3.

Nonverbal Ss - Same as Step 3.

Sequence of Cues and Responses for Verbal Ss:

Note: Same as Step 3; randomize presentation of 6-10¢.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as Step 3; randomize presentation of 6-10¢.

Step 5 - S counts and labels or gestures worth of 1-10¢ from a larger group randomly presented.

Materials:
Verbal Ss - Same as Step 1.

Nonverbal Ss - Same as Step 1.

Data Collection:
Verbal Ss - Same as Step 1 except 1-10¢ are used as stimuli.

Nonverbal Ss - Same as Step 1 except 1-10¢ are used as stimuli.

Sequence of Cues and Responses for Verbal Ss:

Note: Same as Step 1; substitute 1-10¢ for 1-5¢; randomize presentation of 1-10¢.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as Step 1; substitute 1-10¢ for 1-5¢; randomize presentation of 1-10¢.

Part 5 - Counting pennies from a larger group at a specified rate.

S counts a number of pennies cued by T from a larger group (i.e., more than amount cued) at a specified rate.

Step 1 - S counts and labels or gestures worth of 1-5¢ from a larger group in order of increasing value at a specified rate.

Materials:

Verbal Ss - 20 pennies

Nonverbal Ss - 20 pennies, money counters.

Data Collection:

Verbal Ss - Whether during baseline or teaching, responses 2 and 3 should be recorded. Criterion performance would include counting each amount from 1-5¢ three times at a specified rate and labeling the worth of the pennies counted three times in succession. Baseline would consist of presenting cues 1-3 on two consecutive occasions.

Nonverbal Ss - Same as for verbal Ss.

Sequence of Cues and Responses for Verbal Ss:

Teacher Cues	Student Responses
1. T takes one penny from a group of 20 that has been placed in front of S and asks, "What is this?"	1. "Penny, money"
2. "We're going to play a game. Let's see if you can count some pennies before I stop tapping the table (T demonstrates tapping). I won't tell you when I'm going to stop so you better count real fast. If you beat me - if you count all the pennies before I stop tapping, then you can (specify some possible reinforcer, e.g., free time, S gets to tap for another S, etc.). Get ready ... count (1-5) cents."	2. S counts amount cued without assistance by pushing each penny away from the pile while simultaneously verbally labeling each in order of increasing number (e.g., "one, two, three ...").[37]

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[37] See footnote 16.

Teacher Cues	Student Responses
3. After S finishes counting T says, "How much are they worth?"	3. S labels worth.

Note: Continue until S counts each amount from 1-5¢ three times.

Sequence of Cues and Responses for Nonverbal Ss:

Teacher Cues	Student Responses
1. "Take out your money counters."	1. S takes out money counters.
2. T puts 20 pennies in front of S and says, "We're going to play a game. Let's see if you can count some of these pennies before I stop tapping the table (T demonstrates tapping). I won't tell you when I'm going to stop so you better count real fast. If you beat me - if you count the pennies before I stop tapping, then you can (specify some possible reinforcer, e.g., free time, S gets to tap for another S, etc.). Get ready ... count (1-5) cents."	2. S counts the number of pennies cued by placing each one on a circle on the money counter starting at one cent and ending when the last penny (i.e., amount cued) is on the money counter.
3. When S finishes counting, T says, "Point to (touch, show me) how much they are worth."	3. S points to (touches, shows T) the number above the last penny on counter.

Note: Continue until S counts each amount from 1-5¢ three times.

Step 2 - S counts and labels or gestures worth of 1-5¢ from a larger group randomly presented at a specified rate.

Materials:
Verbal Ss - Same as Step 1.

Nonverbal Ss - Same as Step 1.

Data Collection:
Verbal Ss - Same as Step 1.

Nonverbal Ss - Same as Step 1.

Sequence of Cues and Responses for Verbal Ss:

Note: Same as Step 1 except 1-5¢ presented randomly.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as Step 1 except 1-5¢ presented randomly.

Step 3 - S counts and labels or gestures worth of 6-10¢ from a larger group in order of increasing value at a specified rate.

Materials:
Verbal Ss - Same as Step 1.

Nonverbal Ss - Same as Step 1.

Data Collection:
Verbal Ss - Same as Step 1 except 6-10¢ are used as stimuli.

Nonverbal Ss - Same as Step 1 except 6-10¢ are used as stimuli.

Sequence of Cues and Responses for Verbal Ss:

Note: Same as Step 1; substitute 6-10¢ for 1-5¢.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as Step 1; substitute 6-10¢ for 1-5¢.

Step 4 - S counts and labels or gestures worth of 6-10¢ from a larger group randomly presented at a specified rate.

Materials:
Verbal Ss - Same as Step 3.

Nonverbal Ss - Same as Step 3.

Data Collection:

Verbal Ss - Same as Step 3.

Nonverbal Ss - Same as Step 3.

Sequence of Cues and Responses for Verbal Ss:

Note: Same as Step 3; randomize presentation of 6-10¢.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as Step 3; randomize presentation of 6-10¢.

Step 5 - S counts and labels or gestures worth of 1-10¢ from a larger group randomly presented at a specified rate.

Materials:

Verbal Ss - Same as Step 1.

Nonverbal Ss - Same as Step 1.

Data Collection:

Verbal Ss - Same as Step 1 except 1-10¢ serve as stimuli.

Nonverbal Ss - Same as Step 1 except 1-10¢ serve as stimuli.

Sequence of Cues and Responses for Verbal Ss:

Note: Same as Step 1; substitute 1-10¢ for 1-5¢; randomize presentation of 1-10¢.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Same as Step 1; substitute 1-10¢ for 1-5¢; randomize presentation of 1-10¢.

Part 6 - Counting pennies drawn on a worksheet and writing the answer.

S counts pennies (1-10¢) drawn (realistic replica) on a worksheet and indicates the amount counted by drawing a line to the appropriate numerical value or writing this amount.

Step 1 - S counts an array of pennies (randomly chosen from 1-10¢) drawn on a worksheet, then draws a line from the array to its corresponding numerical value.

Materials:

Verbal Ss - Worksheets.

Nonverbal Ss - Worksheets.

Data Collection:

Verbal Ss - Whether during baseline or teaching, responses 2, 3, and 4 should be recorded. Criterion performance would involve the correct completion of three worksheets three times in succession. Baseline would involve two presentations of cues 1-4 for each of the worksheets used in this step.

Nonverbal Ss - Same as verbal *S*s.

Sequence of Cues and Responses for Verbal Ss:

Teacher Cues	*Student Responses*
1. *T* gives *S* a worksheet, points to the first set of pennies and says, "What are these (What is the name of these coins?)?"	1. "Pennies, money"
2. "Count the pennies."	2. *S* counts the first set of pennies by touching each in succession while verbally labeling each one touched.
3. When *S* finishes counting *T* says, "How much are they worth?"	3. *S* labels worth of amount counted.
4. "Find (*amount counted*) cents on this side (*side opposite penny array*) and draw a line to it."[38]	4. *S* draws line from the set of pennies counted to its corresponding numerical value (e.g., 6¢).

Note: Continue until *S* has completed three worksheets.

Sequence of Cues and Responses for Nonverbal Ss:

Teacher Cues	*Student Responses*
1. *T* hands each *S* a worksheet, points to the first set of pennies and says,	1. *S* observes *T*.

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[38] Cues 3 and 4 should eventually be faded regarding self-initiation.

Teacher Cues	Student Responses
"We're going to count these pennies just like you do on your money counters. This is how you do it (T demonstrates counting amount in set)."	
2. "Count the pennies."	2. S counts amount in first set by touching each coin in order of increasing value.
3. "Point to (touch, show me) how much they are worth?"	3. S points to numerical value above last coin counted.
4. "Find (amount counted) cents on this side (side opposite array and draw a line to it."[39]	4. S draws line from the set of pennies counted to its corresponding numerical value (e.g., 6¢).

Note: Continue until S has completed three worksheets.

Step 2 - S counts an array of pennies (randomly chosen from 1-10¢) drawn on a worksheet, then draws a line from the array to an object containing a price tag whose value corresponds to the amount counted.

Materials:

Verbal Ss - Worksheets.

Nonverbal Ss - Worksheets.

Data Collection:

Verbal Ss - Whether during baseline or teaching, responses 2, 3, 4, and 5 should be recorded. Criterion performance would include the correct completion of three worksheets three times in succession. Baseline would involve two presentations of cues 1-5 for each of the worksheets used in this step.

Nonverbal Ss - Same as verbal Ss.

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[39] Cues 3 and 4 should eventually be faded regarding self-initiation.

Sequence of Cues and Responses for Verbal Ss:

Note: Cues and responses 1-3 are same as in Step 1.

Teacher Cues	Student Responses
4. T points to objects on opposite side from penny sets and says, "Look at the pricetags. What can you buy with (amount counted) cents?"	4. S names item which corresponds in price to amount counted.
5. "Draw a line to it."[40]	5. S draws line from set of pennies counted to object which corresponds in price.

Note: Continue until S completes three worksheets.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Cues and responses 1-3 are same as in Step 1.

Teacher Cues	Student Responses
4. T points to objects on opposite side from penny sets and says, "Look at the pricetags. Point to (touch, show me) what you can buy with (amount counted) cents."	4. S points to (touches, shows T) item which corresponds in price to amount counted.
5. "Draw a line to it."[41]	5. S draws line from set of pennies counted to object which corresponds in price.

Note: Continue until S completes three worksheets.

Step 3 - S counts an array of pennies (randomly chosen from 1-10¢) drawn on a worksheet and indicates the value by writing down the numerical component with the cents sign (or decimal sign) provided.

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[40] Cues 3, 4 and 5 should eventually be faded regarding self-initiation.

[41] Cues 3, 4 and 5 should eventually be faded regarding self-initiation.

Materials:

Verbal Ss - Worksheets.

Nonverbal Ss - Worksheets.

Data Collection:

Verbal Ss - Same as Step 2 except substitute responses 2, 3, 4 and 5 from this step.

Nonverbal Ss - Same as Step 2 except substitute responses 2, 3, 4 and 5 from this step.

Sequence of Cues and Responses for Verbal Ss:

Teacher Cues	Student Responses
Note: Cues and responses 1-3 same as in Step 1.	
4. T points to the space provided on the worksheet between the equal[42] and cent signs[43] and says, "Print (number counted) here."[44]	4. S prints number in space provided (e.g., 000 = ___¢).
5. "Say the whole thing."	5. "(Number counted) pennies equals (corresponding value) cents."

Note: Continue until S completes three worksheets.

Sequence of Cues and Responses for Nonverbal Ss:

Teacher Cues	Student Responses
Note: Cues and responses 1-3 same as in Step 1.	
4. T points to the space provided on the worksheet between the equal[45] and cent (or decimal)[46] signs and	4. S prints number in space provided (e.g., 000 = ___¢ or 000 = $.___).

---

[42] Gradually fade equal sign so that S is required to draw it.

[43] On some worksheets the authors suggest using a decimal format to designate cents (i.e., $.___ instead of ___¢).

[44] Cues 3 and 4 should eventually be faded regarding self-initiation.

[45] See footnote 42.

[46] See footnote 43.

Teacher Cues	Student Responses
says, "Print (number counted) here."[47]	
5. "Point to (show me, touch) (number counted) pennies ... equals ... (value of amount counted) cents."[48]	5. S points (touches, shows T) components cued.

Note: Continue until S completes three worksheets.

Step 4 - S counts an array of pennies (randomly chosen from 1-10¢) drawn on a worksheet and indicates the value by writing down the numerical component and the cents (or decimal) sign.

Materials:
Verbal Ss - Worksheets.

Nonverbal Ss - Worksheets.

Data Collection:
Verbal Ss - Same as Step 2 except substitute responses 2, 3, 4 and 5 from this step.

Nonverbal Ss - Same as Step 2 except substitute responses 2, 3, 4 and 5 from this step.

Sequence of Cues and Responses for Verbal Ss:

Teacher Cues	Student Responses

Note: Cues and responses 1-3 same as in Step 1.

Teacher Cues	Student Responses
4. T points to the space provided on the worksheet after the equal sign[49] and says, "Print (value of amount counted) cents here."	4. S prints numerical component and cents (or decimal)[50] sign in space provided (e.g., 000 = ___¢ or 000 = $.___).

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[47] Cues 3 and 4 should eventually be faded regarding self-initiation.

[48] Occasionally vary the sequence of specifying the components of this statement (e.g., "equals ... ___ pennies ... ___ cents, etc.).

[49] See footnote 42.

[50] See footnote 43.

Teacher Cues	Student Responses
5. "Say the whole thing."[51]	5. "(Number counted) pennies equals (corresponding value) cents."

Note: Continue until S completes three worksheets.

Sequence of Cues and Responses for Nonverbal Ss:

Note: Cues and responses 1-3 same as Step 1.

Teacher Cues	Student Responses
4. T points to the space provided on the worksheet after the equal sign[52] and says, "Print (value of amount counted) cents here."[54]	4. S prints numerical component and cents (or decimal)[53] sign in space provided (e.g., 000 = ___¢ or 000 = $.___).
5. "Point to (show me, touch) (number counted) pennies ... equals ... (value of amount counted) cents.'[55]	5. S points to (touches, shows T) components cued.

Note: Continue until S completes three worksheets.

Step 5 - S labels or gestures the worth of a numeral written in cents (or decimal) form (e.g., 8¢, $.08) on a worksheet and using a stamp makes the number of pennies which corresponds to this value in the space provided.

Materials:

Verbal Ss - Worksheets, penny stamp and ink pad.

Nonverbal Ss - Worksheets, penny stamp and ink pad, money counters.

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[51] Cues 3 and 4 should eventually be faded regarding self-initiation.

[52] See footnote 42.

[53] See footnote 43.

[54] Cues 3 and 4 should eventually be faded regarding self-initiation.

[55] See footnote 48.

Data Collection:

Verbal Ss - Whether during baseline or teaching, responses 2, 3, and 4 should be recorded. Criterion performance includes the completion of three worksheets three times in succession. Baseline would consist of two presentations of cues 1-4 for each worksheet used in this step.

Nonverbal Ss - Same as verbal Ss.

Sequence of Cues and Responses for Verbal Ss:

Teacher Cues	Student Responses
1. T hands S worksheet, penny stamp, and ink pad and says, "Let's do these worksheets."	1. S takes worksheet, stamp, and pad.
2. T points to one of the numerical values pointed on the worksheet (e.g., 8¢ or $.08) and says, "How much is this worth (Read this. What does this say?)?"	2. S labels value (e.g., "eight cents").
3. T points to blank space after the equal sign, adjacent to the numeral labeled and says, "Make a set of (or stamp out) (same amount S labeled) cents.'[56]	3. Using the penny stamp and pad, S stamps out the number of pennies in the space provided after the equal sign which corresponds to the numerical value labeled (e.g., S stamps eight pennies).
4. "Say the whole thing."	4. S says, "___ cents equals ___ pennies.

Note: Continue until S completes three worksheets.

Sequence of Cues and Responses for Nonverbal Ss:

Teacher Cues	Student Responses
1. T hands S worksheet, penny stamp, and ink pad and says, "Let's do these worksheets.	1. S takes worksheet, stamp, and pad and takes out money counter.

---

[56] Cues 2 and 3 should eventually be faded regarding self-initiation.

	Teacher Cues		
	Take out your money counters."		
2.	T points to one of the numerical values printed on the worksheet (e.g., 8¢ or $.08) and says, "Point to (show me, touch) how much this is worth."	2.	S points to (shows T, touches amount T cued on his/her money counter (e.g., 8¢).
3.	T points to blank space after the equal sign, adjacent to the numeral and says, "Make a set of (or stamp out) (same amount S verified) cents."[57]	3.	Using penny stamp and pad, S stamps out the number of pennies in the space provided after the equal sign which corresponds to the numerical value indicated (e.g., S stamps out eight pennies).
4.	"Point to (show me, touch) (value indicated) cents ... equals ... (number stamped) pennies."[58]	4.	S points to (touches, shows T) components cued.

Note: Continue until S completes three worksheets.

Phase IV: Labeling the price of items; choosing an item to buy; making purchases at a simulated classroom store and actual community stores.

Part 1 - Labeling the worth of items with and without price tags.

S labels or gestures the worth of an item (randomly varied 1-10¢) with a price tag when T presents the item and asks, "What is this worth?" or "How much does this cost?" For items without a price tag, S presents the item to T and asks, "How much does this cost?"

Step 1 - Labeling or gesturing the worth of items with price tags.

Materials:

Verbal Ss - At least 15 items with price tags worth between 1-10¢.

Nonverbal Ss - Various items with price tags worth between 1-10¢, money counters.

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[57] Cues 2 and 3 should eventually be faded regarding self-initiation.

[58] See footnote 50.

Data Collection:

Verbal Ss - Whether during baseline or teaching, response 1 should be recorded. Criterion performance involves labeling the price of each item correctly three times in succession.

Nonverbal Ss - Same as Verbal Ss.

Sequence of Cues and Responses for Verbal Ss:

Teacher Cues	Student Responses
1. T places five items in front of S and allows S to examine them. T then points to each item and says, "What is this worth (How much does this cost?)?"	1. S labels value (e.g., "six cents").

Note: Continue until S labels all fifteen items.

Sequence of Cues and Responses for Nonverbal Ss:

Teacher Cues	Student Responses
1. T places five items in front of S and allows S to examine them. T then points to each item and says, "Show me (point to, touch) on your money counters how much this is worth (costs)."	1. S shows T (points to, touches) the numerical value on his/her money counter which corresponds to the value of the item T touched.

Note: Continue until S has indicated the value of all fifteen items.

Step 2 - Determining the worth of items without price tags.

Materials:

Verbal Ss - At least 15 items without price tags worth between 1-10¢.

Nonverbal Ss - Same as for verbal Ss, and index card with "Please tell me how much this costs." written on one side.

Data Collection:

Verbal Ss - Whether during baseline or teaching, response 2 should be recorded. Criterion performance involves the execution of response 2 correctly three times in succession.

Nonverbal Ss - Same as for verbal Ss.

Sequence of Cues and Responses for Verbal Ss:

Teacher Cues	Student Responses
1. T places five items without price tags in front of S and allows S to examine them. T holds up an additional item with a price tag and says: "This (name of item) has a price tag. It costs (labels value). These (points to items in array) don't have price tags. If you want to buy these you have to ask me how much they cost."	1. No response required.
2. "Choose an item and ask me how much it costs."	2. S chooses an item and asks T what it costs.

Note: Continue until S asks worth of all fifteen items.

Sequence of Cues and Responses for Nonverbal Ss:

Teacher Cues	Student Responses
1. Same as for verbal Ss.	1. Same as for verbal Ss.
2. T gives S card with the question, "Please tell me how much this costs." written on one side.	2. S takes card.
3. "If you want to buy an item without a price tag, you need to give me this card to find out how much it costs."	3. No response required.
4. "Choose an item and give me the card to find out how much it costs."	4. S chooses an item and gives card to T.

Part 2 - Introduction to the function of grocery stores through the use of a simulated classroom store.

S determines that she/he would like to make a purchase (1-10¢ item). S takes money and goes to simulated classroom store; finds appropriate area (department) where item is shelved; selects item she/he has enough money to purchase; locates check-out lane; pays for item; and determines what to do with item purchased (e.g., consume it, store it, share with another, etc.).

Materials:

Verbal Ss - Pennies varying between 1-10¢; a container to serve as S's "bank;" classroom store made of cardboard; items with or without price tags on shelves and countertops.

Nonverbal Ss - Same as verbal Ss.

Data Collection:

Verbal Ss - Whether during baseline or teaching trials, the following responses should be recorded:

a. When purchasing an item with a price tag: 2, 3, 4, 5, 8, 9, 10;
b. When purchasing an item without a price tag: 2, 3, 4, 6, 7, 8, 9, 10.

S's name should appear in the column at the left on the data sheet, and the responses listed in either a or b should be written across the top rows. Criterion performance would include three consecutive correct occurrences of all the responses listed in a, and b when appropriately cued (i.e., T should randomly intersperse trials where S selects items with a price tag and items without price tags until criterion is reached for each). Baseline would consist of the presentation of cues 1-10 for three successive trials.

Nonverbal Ss - The procedure is the same as for verbal Ss except for the following:

a. For items with a price tag, record responses 2, 3, 4, 5, 8, 9, 10, 11.
b. For items without a price tag, record responses 2, 3, 4, 6, 7, 8, 9, 10, 11.

Present cues 1-12 for baseline trials.

Sequence of Cues and Responses for Verbal Ss:

Teacher Cues	Student Responses
1. "We're going to a store to buy some (varies)."	1. No response required.
2. a. "What do you need to buy some (varies)?"	2. "Money, pennies or coins"

Teacher Cues	Student Responses
b. or, "What do you use to buy some (varies)?"	
3. "Get your money."[59]	3. S takes money from "bank".
4. a. "Find some (e.g., candy) you want to buy." b. or, "Look for some (e.g., candy)." c. or, "Get the (e.g., candy) you want."	4. S searches for and selects the item.[60]
5. If the item selected has a price tag, T should say: a. "Look at the price tag; how much does (name of item) cost?"	5. "_________cents"
6. If the item does not have a price tag: "Does this have a price tag?"	6. "No "
7. "Go ask the clerk how much it costs."	7. S complies.
8. "Count your money. Do you have enough?"	8. "Yes" or "no"; varies with item selected.
9. If the correct answer is yes, say: "Buy the (name of item)."	9. S goes to check-out area; gives clerk the money; waits for change, if appropriate; keeps item at end of transaction.
10. If the correct answer is no,[61] ask S to find another item.	10. S selects another item.

Note: Repeat cues 5-10 as applicable to new items selected; continue until S makes three purchases.

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[59] Cues 2 and 3 should eventually be faded so that S initiates response 3 solely on the basis that she/he needs to make a purchase at a store.

[60] Additional cues to help orient S to the area of the store where a particular item is displayed may be necessary initially. T should make sure that S occassionally must ask the clerk for an item that is kept behind the counter area to facilitate the acquisition of this common purchasing-related response.

[61] Since independent purchasing is one of the major goals of the program, cues 4-10 should eventually be faded, so that S initiates all the necessary responses without T's cues.

Sequence of Cues and Responses for Nonverbal Ss

Teacher Verbal Cues or Signs	Student Responses
1. "We're going to a store to buy some (varies)."	1. No response required.
2. a. "Show me what you need to buy some (varies)." b. or "Go get what you use to buy some (varies)."[62]	2. S takes money from her/his "bank".
3. Once at the simulated classroom store, T says: a. "Show me some (e.g., candy) you want to buy." b. or "Point to some (e.g., candy) you want to buy." c. or "Pick out some (e.g., candy) to buy."	3. S selects an item from the general category cued.[63]
4. "Take out your money counters."	4. S complies.
5. If the item has a price tag, "Point to the price tag. Now point (touch, show me) how much the (e.g., candy) costs on your money counter."	5. S points to the price tag; S points to the corresponding amount on the money counter.
6. If the item does not have a price tag: "Does this have a price tag?"	6. Gesturally indicates "no" (i.e., shakes head, signs "no").
7. "Show the money counter to the clerk to find out how much the (e.g., candy) costs."	7. S shows clerk money counter and item, and waits until clerk indicates the cost.
8. After either cue 5 or 6 and 7, say, "Count your pennies on the money counter."	8. S counts the pennies by placing them on the appropriate number on the money counter.

---

[62] Cue 2 should eventually be faded so that S initiates the response after cue 1.

[63] Additional cues to help S find where in the store the cued items are located may be necessary at first. T should make sure that S must sometimes go up to the clerk and indicate through pointing that she/he wants an item which is behind the counter.

Teacher Verbal Cues or Signs	Student Responses
9. "Point to (show me, touch) where 'x' is on the money counter (*T* is referring to 'x' clerk made on card to indicate item's value)."	9. *S* points to 'x'.
10. "Do you have *enough* to buy the (*e.g., candy*)?"	10. *S* gesturally indicates "yes" or "no" appropriately.
11. If the correct answer is *yes*, say: "Buy the (*name of item*).	11. *S* goes to check-out area; gives the clerk the money; waits for change if appropriate; keeps item at end of transaction.
12. If the answer is *no*, ask *S* to select another item.[64]	12. *S* selects another item.

Note: Repeat cues 4-12 as applicable to new item selected; continue until *S* completes three purchases.

Part 3 - Making a purchase at an actual community store.

S takes money from her/his "bank" (1-10¢); goes to a community store; chooses an item; determines if she/he has enouch money; and, if so, purchases the item.

Step 1 - *S* goes to a community store *with* *T* and makes a purchase.

Note: Same as Part 2 for both verbal and nonverbal *S*s, except that *T* assists *S* in traveling to the store.

Step 2 - *S* goes to a community store *with* *T*, but enters store and makes a purchase *without* *T*.

Note: Same as Step 1, except that *T* waits outside store until *S* completes transaction.

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[64] Cues 3-11 should eventually be faded so that *S* eventually initiates all the necessary purchasing responses without being first cued by *T*.

RESULTS

Summary of Criterion Performance

A summary of the criterion performance of each S in Phases I-IV is presented in Table I. Ten Ss were involved in the program over a two-year period. The program was taught to seven Ss (Ss 1-7) the first year. Four Ss (Ss 4-7) remained in the same class the following year and three new Ss (Ss 8-10) were added to the class.

During the first year of instruction, all seven Ss reached criterion on all parts of Phases I and II and Parts 1-5 of Phase III. Attempts to teach Phase III, Part 6,and all of Phase IV were not made because of the impending end of the school year.

Instruction continued the following year with Ss 4-7. All 4 Ss reached criterion on Phase III, Part 6; on Phase IV, Parts 1 and 2, and on Part 3, Step 1. Thus, by the end of the year, Ss 4-7 were able to go to a simulated classroom store or actual community store with T; choose an item to buy; determine if he/she had enough money; and, if so, purchase the item.

Instruction began on the program with the three new Ss (Ss 8-10) during the second year. S_8 reached criterion on Phases I and II, Parts 1-5. S_9 reached criterion on all parts of Phases I and II and on Phase III, Parts 1-3. S_{10} reached criterion on all the phases and parts that Ss_{1-7} had the year before, namely all parts of Phases I and II, and Parts 1-5 of Phase III.

Specific Performance Information

Figures 1-3 provide information regarding the savings in the number of teaching trials needed to attain criterion performance across related tasks within steps. Figure 1 depicts the performance of $\underline{S}_{10}$ on the sorting, matching and labeling tasks (pennies, nickels, dimes and quarters) of Phase I, Parts 3-5. Although $\underline{S}_{10}$ required seven teaching trials to reach criterion on the sorting task of Part 3, teaching the matching and labeling tasks were unnecessary since $\underline{S}_{10}$ performed without error during baseline trials.

Figure 2 represents the performance of $\underline{S}_4$ during four tasks involving labeling the worth of varying amounts of pennies in Phase III, Part 1. $\underline{S}_4$ required nine teaching trials to attain criterion on the first set of pennies in Step 1 (1¢-5¢, presented in order of increasing value). Once criterion was reached in Step 1, $\underline{S}_4$ was given the opportunity to perform the three tasks in Steps 2-4 and performed without error during baseline trials.

Similar results are depicted in Figure 3 for $\underline{S}_6$. Figure 3 represents the performance of $\underline{S}_6$ on five tasks in Phase III, Part 2, which involve counting pennies and indicating their worth. $\underline{S}_6$ required 8 teaching trials to reach criterion in Step 1, but did not require any teaching trials for Steps 2-5.

The inclusion of these figures is only an example of the data collected. They were chosen to highlight trends in the data related to the potential efficiency of the instructional sequence.

TABLE 1

SUMMARY OF CRITERION STUDENT PERFORMANCE FOR ALL PROGRAM PHASES

	PHASE I					PHASE II						PHASE III						PHASE IV			
	Parts					Parts						Parts						Parts			
	1	2	3	4	5	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	
Students																				Step 1	Step 2
1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
8	X	X	X	X	X	X	X	X	X	X											
9	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					

Note: The performance of the students in the second-year program is enclosed in double lines.

X – indicates S achieved criterion.

PHASE I - Parts 3-5 - S_{10}
(Discriminating Between Coins)

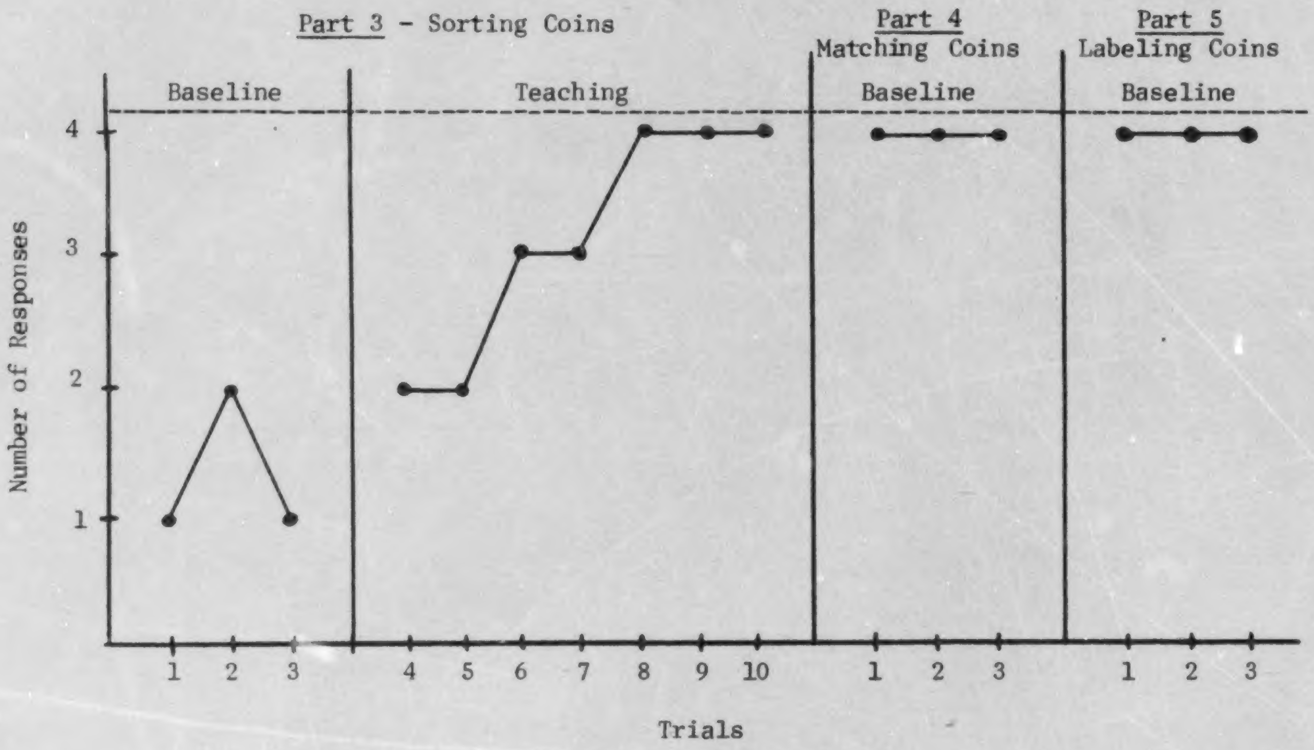

Figure 1 - This figure shows the performance of S_{10} under the baseline and teaching conditions of Phase I, Parts 3-5. The dotted line represents criterion performance for Paths 3-5 sorting, matching, and labeling tasks (penny, nickel, dime, and quarter).

PHASE III - Part 1 - S_4
(Labeling Worth of Pennies)

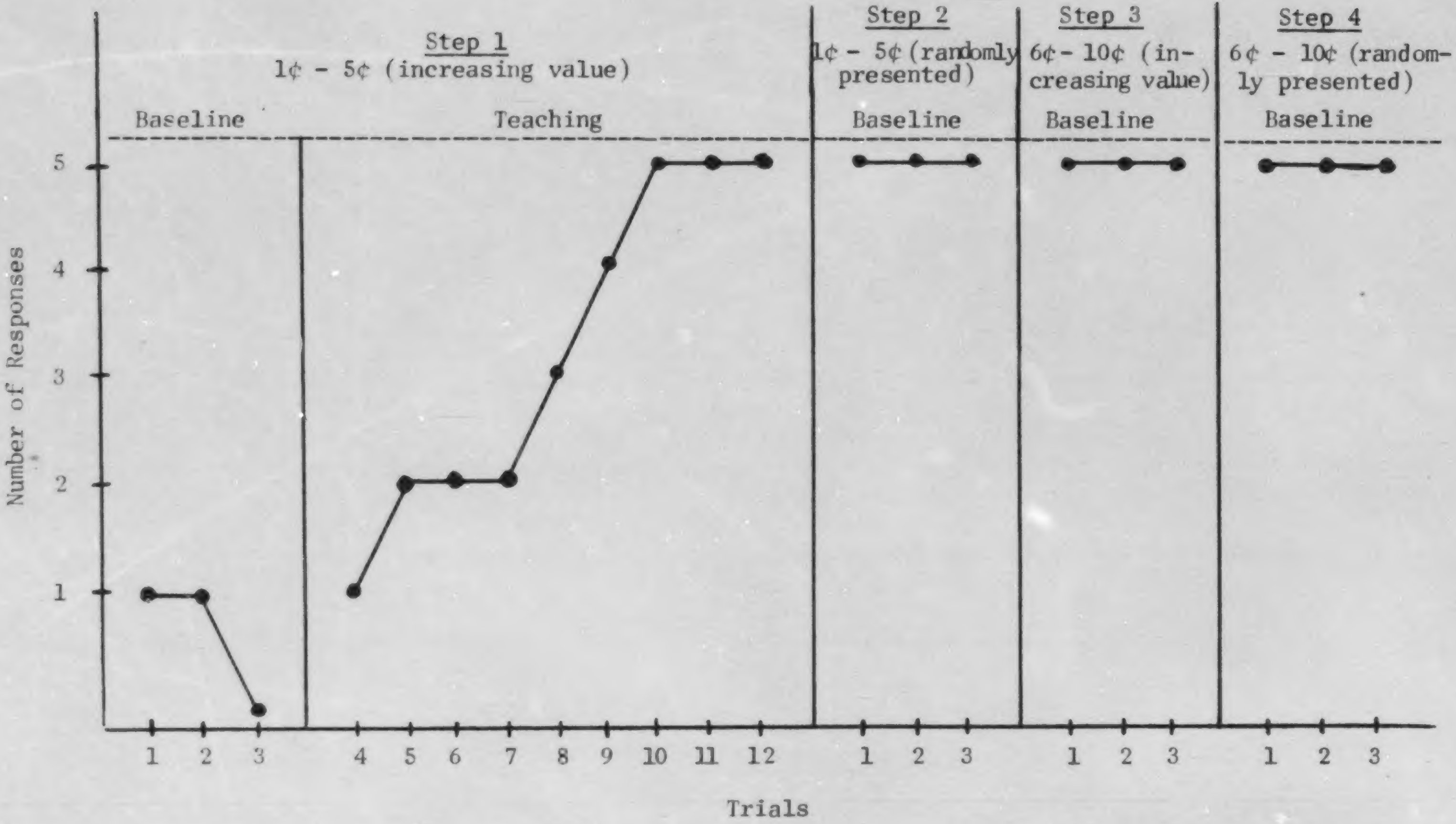

Figure 2 - This figure shows the performance of S_4 under the baseline and teaching conditions of Phase III, Part 1. The dotted line represents the criterion performance for the Part 1 tasks of labeling the worth of pennies.

PHASE III - Part 2 - S_6
(Counting Pennies; Labeling Worth)

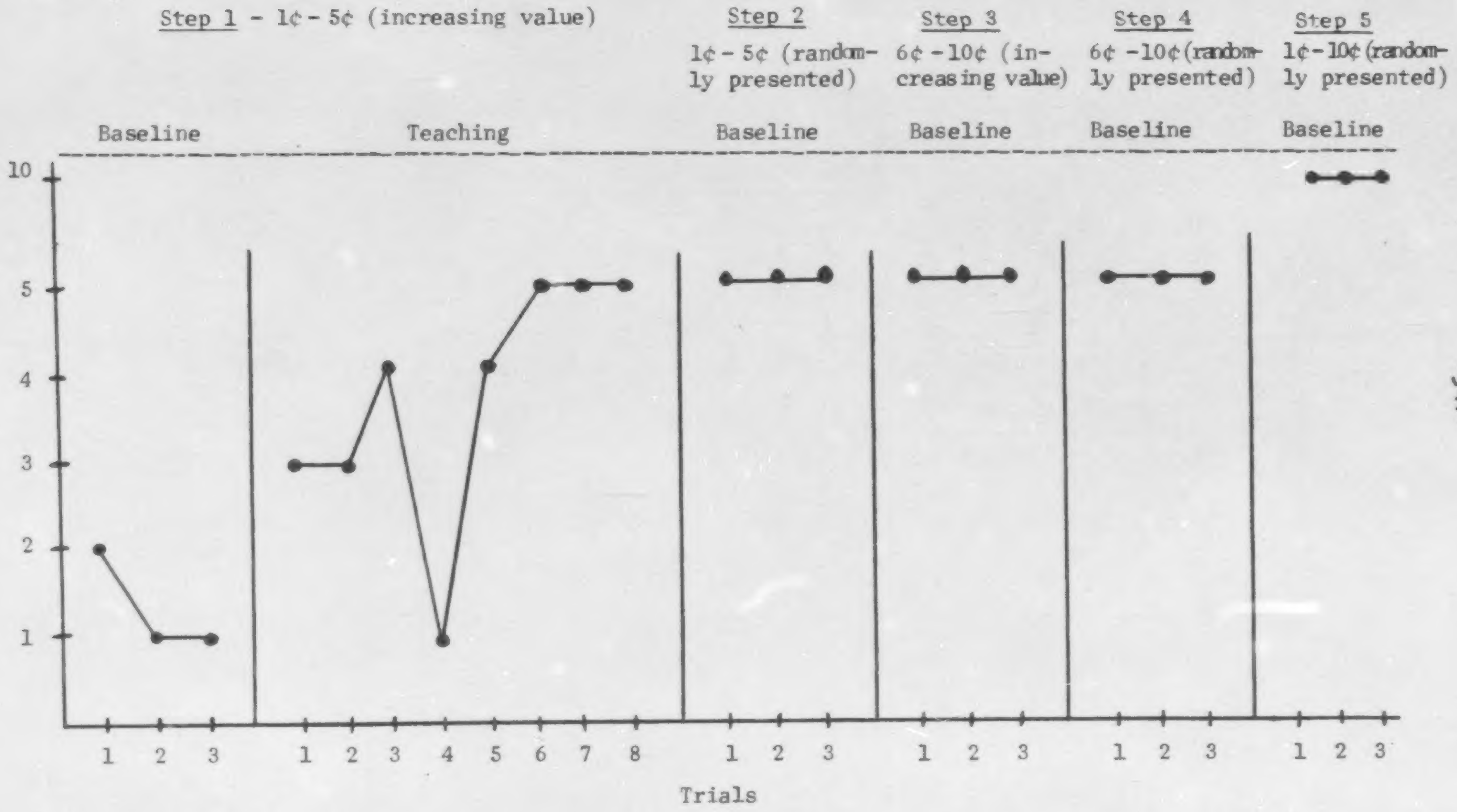

Figure 3 - This figure shows the performance of S_6 under the baseline and teaching conditions of Phase III, Part 2. The dotted line represents the criterion for these trials.

DISCUSSION

Skill Acquisition

Basic money skills were acquired by all ten students, although the extent to which the skills were acquired varied in degree within and between students. A number of comments should be made in explanation of the results that were reported above.

The real success of the program will be in the completion of the final step, teaching the Ss to go alone to a store and make a purchase. Because of the young age of the Ss; their lack of experience using public transportation or walking unassisted to stores; the end of the school year; and the considerable time required to be spent in one-to-one teaching situations outside of school, instruction was not initiated on the final step of the program. This step, however, will be implemented with Ss 4-7 during the subsequent school year. Despite the fact that formal instruction was not initiated on the final step of the program, anecdotal information indicated that the necessary skills may have been acquired, at least in one case. A mother reported that her son could, at the end of the school year, enter a store and make a purchase alone while she waited outside. Also, though no data was collected, Ss were taken to stores during the year on an informal basis.

Instructional Time

If progress appears slow for Ss 4-7 during the second year, it should be noted that in addition to completing Phase III of this program, T also began instruction with these Ss on nickels--a nickel's worth; equating a nickel and five pennies; counting nickels and pennies; and making purchases with nickels and pennies.

By looking at Table 1, one can see a pattern developing in the amount of material which was accomplished in a single year. Eight of the ten Ss, who had had no appreciable experience with money before, completed the program through Part 5 of Phase III. There may be a number of factors which contributed to the slower progression of Ss 8 and 9 through the program. First, these students were the youngest in the group and did not begin instruction at the start of the year, as did the other eight Ss. Instead, time was spend informally demonstrating to them how money may be used as a medium of exchange (to buy things) before they began sorting coins. Also, Ss 8 and 9 did not demonstrate as many math skills as did the other Ss. There are many math skills involved in the program--sorting objects in sets, numeral recognition and identification (for pricetags), writing numerals, rationally counting a given number of objects, counting a number from a larger group and more and less (enough, not enough, more than enough). Although these skills may be taught in the context of the program, the slower movement of Ss 8 and 9, who could not initially demonstrate mastery of all of these skills, may indicate that they should be taught before, or at least simultaneously with, this program.

Sequence Efficiency

From the data presented in Figures 1, 2, and 3, it can be concluded for the particular parts or steps depicted, that the instructional sequence is well organized to facilitate acquisition while minimizing error. In addition, since skills in all phases of the program were acquired, it appears that the total instructional sequence represents a potentially useful tool for teachers interested in providing instruction on this crucial community survival skill.

Concluding Comments

Frequently, teachers wait to teach functional money skills until trainable and severely handicapped students are older than those instructed within the context of this program. It is the authors' contention that the demonstration of skill acquisition, through the implementation of this program, raises the possibility that functional money skills can be taught to younger trainable and severely handicapped students. Furthermore, it is the authors' contention that the time required to teach this program, coupled with the myriad of skills necessary for independent community living, makes it incumbent upon teachers to incorporate tasks, such as those contained in this program, into curricula for younger trainable and severely handicapped students.

REFERENCES

Arithmetic curriculum for the mentally handicapped. Sisters of St. Francis Assisi, St. Coletta Schools, Milwaukee, WI: Cardinal Stritch College, 1960.

APPENDIX A

TEACHING SEVERELY HANDICAPPED STUDENTS TO FUNCTION AS DISHWASHERS IN SIMULATED AND NATURAL WORK SETTINGS

by

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[1] This paper is an abbreviated version of a paper submitted in partial fulfillment of the requirements for the degree of Master of Science from the Department of Studies in Behavioral Disabilities at the University of Wisconsin-Madison, 1976.

CHAPTER II

TASK ANALYSIS AND INSTRUCTIONAL PROGRAM

Phase I: Teaching Ss to arrange for the operation of and to operate an automatic commercial dishwashing machine in a public high school.

In Phase I, Part 1, five *S*s, some of whom had received training in using the Madison Metro bus system in a previous program (Certo, Schwartz & Brown, 1975), were taught additional skills to facilitate independent travel from a bus stop to the job setting.

In Phase I, Part 3, time was allowed for *S*s to actually take a bus at a central location (the Madison city square) to and from the job setting. *S*s were also trained to take buses from their homes to the central location.

When *S*s and *T* met at a bus stop near the work facility, *S*s were taught to cross a two-lane street, walk approximately 300 yards to the cafeteria entrance, walk to the work area, put away various nonwork-related items and take a position at a work station.[3]

Part 1 - Teaching Ss to enter the work facility and prepare for work in response to verbal cues provided by T.

Steps	T's Verbal Cues	Steps	S's Actions
1.	"Cross the street."	1.	*S* looks in both directions and crossed the street safely (in the judgment of *T*).
2.	"Go to the cafeteria."	2.	*S* walks down the sidewalk and enters the cafeteria.
3.	"Go to the work area."	3.	*S* walks through the cafeteria and enters the work area.

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[3] For a more detailed description of the task the reader is referred to the Work Area Model A presented in Appendix B.

Steps	T's Verbal Cues	Steps	S's Actions
4.	"Put away your things."	4.	S puts away various nonwork-related items he has brought (e.g., hangs up coat, puts away lunch, radio) in personal storage area.
5.	"Work on silver" or "Work on bowls" or "Work on plates & trays" or "Work on dishloading" or "Work on stacking."	5.	S goes to the appropriate work station.

Part 2 - Teaching Ss to perform each component of a six component dishwashing task in response to verbal cues provided by T.

Component A

Teaching Ss to prepare silverware to be placed in a dishwasher.

Work Station A consists of a service window through which trays from the eating area are passed and placed on a conveyor belt. S is required to clear the silver from the tray as it passes and place the dirty silver in a rinse bowl. S then shakes the loose food from the silver and places them in a silverware carrier which consists of containers for spoons, knives and forks respectively. When the containers are full, S takes the silverware tray to the dishloader, returns and repeats the task until all the trays are cleared or the work period ends.

Steps	T's Verbal Cues	Steps	S's Actions
1.	"Get the silverware rinse bowl."	1.	S secures a large metal bowl from the cart.

Steps	T's Verbal Cues	Steps	S's Actions
2.	"Squirt some soap into the bowl."	2.	S places the bowl in the sink, picks up the soap container from the counter and squirts an appropriate amount (in the judgment of T) into the bowl.
3.	"Turn on the hot water."	3.	S lifts the faucet handle up so that hot water flows.
4.	"Check the temperature."	4.	S checks the temperature by placing one hand under the faucet while moving the handle with the other until the water is "hot" (in the judgment of T).
5.	"Fill the bowl."	5.	S places the bowl in the water flow until the bowl is filled to the appropriate level (in the judgment of T).
6.	"Turn off the water."	6.	S pressed the faucet handle down so that the water ceases to flow.
7.	"Take the bowl to your station."	7.	S takes the bowl to the work station and places it in the appropriate spot.
8.	"Get the silver carrier."	8.	S gets the silver carrier from the cart and places it in the appropriate spot in the work area. S adds containers to the carrier if necessary.
9.	"Get the extra silver containers."	9.	S gets extra containers from the shelf and puts them in the appropriate spots in the work area.
10.	"Start the top conveyor belt."	10.	S presses the appropriate conveyor belt start button.
11.	"Start the garbage disposal."	11.	S turns the garbage disposal lever on.
12.	"Clear the silver."	12.	S takes the silver off each tray as they pass on the conveyor.

Steps	T's Verbal Cues	Steps	S's Actions
13.	"Shake the silver."	13.	S places the silver in the soapy water, shakes the loose food off and then leaves the silver in the bowl.
14.	"Put the silver into the silver carrier."	14.	S picks out a handful of knives and places them in the knife container. S repeats the action with spoons and forks.
15.	"Take the silver carrier to the dishloader."	15.	S takes the silver carrier when full (in the judgment of T) to the person loading dishes.
16.	T repeats cues 12-15 until all trays are cleared or the work period ends.	16.	S repeats actions 12-15 until all trays are cleared or the work period ends.

Component B

Teaching Ss to prepare bowls to be placed in a dishwashing machine.

Work Station B consists of a top conveyor belt which carries trays from Work Station A. S clears the bowls from the trays as they pass and scrapes excess food from the bowl into a trough of running water that flows to the garbage disposal. After scraping the bowl clean, S rinses the bowl in soapy water, and stacks it on a plastic tray. When the tray is full, S places the tray onto the bottom conveyor belt which carries the bowls to the dishloader. S repeats these tasks until all available trays are cleared or the work period ends.

Steps	T's Verbal Cues	Steps	S's Actions
1.	"Get the rinse bowl for the bowls."	1.	S gets a large metal bowl from the shelf.
2.	"Squirt some soap into the bowl."	2.	S places the bowl in the sink, picks up the soap container from the counter and squirts an appropriate amount (in the judgment of T) into the bowl.
3.	"Turn on the hot water."	3.	S lifts the faucet handle up so that the water flows.
4.	"Check the temperature."	4.	S checks the temperature by placing one hand under the faucet while moving the handle with the other until the water is "hot" (in the judgment of T).
5.	"Fill the bowl."	5.	S lets the water run until the bowl is filled to the appropriate level (in the judgment of T).
6.	"Turn off the water."	6.	S pressed the faucet handle down so that the water ceases to flow.
7.	"Take the bowl to the work station.	7.	S takes the bowl to the work station and places it in the appropriate spot.
8.	"Get a plastic tray."	8.	S secures a plastic tray from the cart and places it in the appropriate spot in the work area.
9.	"Get a scraper."	9.	S secures a scraper from the shelf and places it in the appropriate spot in the work area.
10.	"Clear the bowls."	10.	S takes all the bowls off each tray as they pass.
11.	"Scrape the bowls."	11.	S picks up a scraper and a bowl and scrapes (one motion top to bottom) excess food into the trough.
12.	"Rinse the bowls."	12.	S rinses the bowl in the soapy water.

Steps	T's Verbal Cues	Steps	S's Actions
13.	"Stack the bowls."	13.	S stacks the bowl on the plastic tray.
14.	"Put the tray on the conveyor."	14.	S places the tray when full (in the judgment of T) on the bottom conveyor belt.
15.	T repeats cues 10-14 until all the trays are put on the conveyor or the work period ends.	15.	S repeats actions 10-14 until all the trays are cleaned or the work period ends.

Component C

Teaching Ss to prepare plates to be placed in the dishwashing machine.

Work Station C consists of a top conveyor belt which carries trays from Work Station B. S is required to clear the dishes from the trays as they pass and scrape the excess food from the plate onto a trough of running water that flows into a garbage disposal. After scraping the plates S then stacks them on a plastic tray. When the tray is full (in the judgment of T) S places the tray full of plates on the bottom conveyor belt which carries the plates to the person loading dishes. S repeats this task until all the trays are cleared or the work period is over.

Steps	T's Verbal Cues	Steps	S's Actions
1.	"Get the plastic tray."	1.	S secures a plastic tray from the cart and places it in the appropriate spot in the work station.
2.	"Get a scraper."	2.	S secures a scraper from the shelf and places it in the appropriate spot in the work station.

Steps	T's Verbal Cues	Steps	S's Actions
3.	"Clear the plates."	3.	S takes the plates off each tray as they pass.
4.	"Scrape the plate."	4.	S picks up a scraper and scrapes (one motion top to bottom) the excess food into the trough.
5.	"Stack the plates."	5.	S stacks the plates on a plastic tray on the counter.
6.	"Clear the paper."	6.	S clears the paper off each tray and places it in the paper receptacle.
7.	"Clear the trays."	7.	S takes the plastic trays off the top conveyor belt and stacks them on the counter.
8.	"Put the trays on the conveyor."	8.	S places a full load (in the judgment of T) of trays on the bottom conveyor belt.
9.	T repeats cues 1-8 until all the trays are cleared or the work period ends.	9.	S repeats actions 1-8 until all the trays are cleared or the work period ends.

Component D

Teaching Ss to load dishes into the dishwashing machine

Work Area D consists of the bottom conveyor belt which carries bowls, plates and trays to the dishloader. S is required to start the dishwashing machine and load the dishes to be cleaned until all the dishes are loaded or the work period ends.

Steps	T's Verbal Cues	Steps	S's Actions
1.	"Turn on valve A."	1.	S opens valve A all the way out.
2.	"Turn on valve B."	2.	S opens valve B all the way out.
3.	"Turn on valve C."	3.	S opens valve C all the way out.

Steps	T's Verbal Cues	Steps	S's Actions
4.	"Take the hose out of the machine."	4.	S pulls the hose out of the dishwashing machine.
5.	"Drain the hose."	5.	S holds the open end of the hose over the floor drain with one hand and raises the other end as high as possible, allowing the water in the hose to flow out.
6.	"Put the hose away."	6.	S curls the hose up and places it on top of the dishwashing machine.
7.	"Close the drain."	7.	S pushes down on the drain lever so that it reads "closed."
8.	"Open the hot water valve."	8.	S opens the hot water valve all the way out.
9.	"Turn off the hot water valve."	9.	S turns the hot water valve all the way in when water reaches the food trap trays in the dishwashing machine.
10.	"Close door #1."	10.	S takes door #1 off the cart and secures it to the dishwashing machine.
11.	"Close door #2."	11.	S takes door #2 off the cart and secures it to the dishwashing machine.
12.	"Turn on the steam valve."	12.	S opens the steam valve all the way out.
13.	"Turn the start lever to ON."	13.	S turns the start lever to ON.
14.	"Push start button #1."	14.	S pushes start button #1.
15.	"Push start button #2."	15.	S pushes start button #2.
16.	"Fill the soap dish." (if red light is on) T repeats the cue if red light goes on.	16.	If the red light above the soap container is on, S secures the cup, fills with soap and then pours the soap into the soap container until the red light goes off. S repeats the action if red light goes on.

Steps	T's Verbal Cues	Steps	S's Actions
17.	"Turn on the fan."	17.	S turns on the overhead fan.
18.	"Put the guide on the dishwasher."	18.	S starts the bottom conveyor belt.
19.	"Start the bottom conveyor belt."	19.	S starts the bottom conveyor belt.
20.	"Load the big trays."	20.	S places the large metal trays face down on the dishwashing machine.
21.	"Load the plastic trays."	21.	S places one tray sideways in each space between the prongs.
22.	"Load the silver."	22.	S places the silver carrier in the middle of the dishwashing machine.
23.	"Load the bowls."	23.	S places the bowl trays close together and face down on the prongs.
24.	"Load the dishes."	24.	S places two dishes in a parrallel line every other space between the prongs.

Component E

Teaching Ss to remove the dishes from the dishwashing machine and to stack the dishes appropriately.

Work Area E consists of the dishwashing machine from which clean dishes are received, a cart on which to stack bowls, a cart on which to stack trays, a cart on which to stack plates, and a silver shelf. S is required to remove the clean dishes from the dishwashing machine and stack them in the appropriate places.

Steps	T's Verbal Cues	Steps	S's Actions
1.	"Stack the trays."	1.	S removes trays from the dishwashing machine and stacks them on the appropriate cart.
2.	"Stack the bowls."	2.	S removes bowls from the dishwashing machine and stacks them on the appropriate cart.
3.	"Stack the plates."	3.	S removes plates from the dishwashing machine and stacks them on the appropriate cart.
4.	"Put away the silver."	4.	S removes the silver carrier from the dishwashing machine and places it on the silver shelf.
5.	T repeats cues 1-4 until all the dishes are stacked or the work period ends.	5.	S repeats responses 1-4 until all the dishes are stacked or the work period ends.

Component F

Teaching Ss to stop the dishwashing machine and to clean and maintain the work area.

The work area consists of the five Work Stations and cleaning requires that S turn off the dishwashing machine, clean it, and clean the work area.

Steps	T's Verbal Cues	Steps	S's Actions
1.	"Take the silverware rinse bowl to the dishwashing machine."	1.	S takes the silverware rinse bowl to the dishwashing machine and places it face down.
2.	"Take the rinse bowl for the bowls to the dishwashing machine."	2.	S takes the rinse bowl for the bowls to the dishwashing machine and places it face down.
3.	"Stop the top conveyor belt."	3.	S stops the top conveyor belt.
4.	"Turn off the steam valve."	4.	S closes the steam valve.

T's Verbal Cues		S's Actions	
Steps		Steps	
5.	"Open the drain."	5.	S raises the drain lever so that it reads "open."
6.	"Turn off the overhead fan."	6.	S turns off the overhead fan.
7.	"Turn the stop lever to OFF."	7.	S turns the stop lever to OFF.
8.	"Push stop button #1."	8.	S pushes stop button #1.
9.	"Push stop button #2."	9.	S pushes stop button #2.
10.	"Close valve A."	10.	S closes valve A all the way in.
11.	"Close valve B."	11.	S closes valve B all the way in.
12.	"Close valve C."	12.	S closes valve C all the way in.
13.	"Take off door #1."	13.	S removes door #1 and places it on the cart.
14.	"Take off door #2."	14.	S removes door #2 and places it on the cart.
15.	"Put the hose in the dishwashing machine."	15.	S uncoils the hose from the top of the dishwashing machine and places it inside.
16.	"Turn on the rinse valve."	16.	S opens the rinse valuve all the way.
17.	"Rinse the dishwashing machine."	17.	S rinses the dishwashing machine by hosing the belt from left to right.
18.	"Turn off the rinse valve."	18.	S closes the rinse valve.
19.	"Drain the hose."	19.	S holds the open end of the hose over the drain and raises the end connected to the dishwashing machine so that the water flows.
20.	"Put the hose away."	20.	S curls the hose and places it on top of the dishwashing machine.
21.	"Take out the food trays."	21.	S removes the food trays from the dishwashing machine and places them face down in the sink.

Steps	T's Verbal Cues	Steps	S's Actions
22.	"Rinse the food trays."	22.	S opens the faucet and rinses the food off the trays and into the sink tray.
23.	"Put the trays back in the dishwashing machine."	23.	S replaces the food trays.
24.	"Wipe off the counter."	24.	S takes a rag from the sink and wipes off Work Areas A, B, C and returns the rag.
25.	"Turn off the garbage disposal."	25.	S turns the garbage disposal off.

Part 3 - Teaching Ss to perform each component of the six component dishwashing task without verbal cues by T.

This part is essentially the same as Part 2 except that each of the six individual component skills are integrated into an uninterrupted response chain which is initiated by S's reactions to the demands of the task (e.g., presence of a tray of dirty dishes), rather than T's verbal cues. To eliminate unnecessary redundancy, the six component skills are not reiterated for this part. A gradual fading procedure was used to withdraw T's cues.

Phase II: Teaching Ss to arrange for the operation of and to operate an automatic commercial dishwashing machine in a public high school under the supervision of regular employees and the regular cafeteria supervisors.

Part 1 - Teaching Ss to enter the physical facility and prepare for work.

T's Verbal Cues		S's Actions	
Steps		Steps	
1.	"Cross the street."	1.	S looks in both directions and crosses the street safely (in the judgment of T).
2.	"Go to the cafeteria."	2.	S walks down the sidewalk and enters the cafeteria.
3.	"Go to the work area."	3.	S walks through the cafeteria and enters the work area.
4.	"Put away your things."	4.	S puts away various nonwork-related items he has brough (e.g., hands up coat, puts away lunch, radio) in personal storage area.
5.	"Work on silver" or "Work on bowls" or "Work on plates & trays" or "Work on stacking."	5.	S goes to the appropriate work station.

Part 2 - Teaching Ss to perform each component of a five component dishwashing task in response to verbal cues provided by T.

Component A

Teaching Ss to prepare silverware to be placed in a dishwasher.

Work Station A consists of a window through which trays are passed from the eating area and placed on a conveyor belt. S is required to clear the silver from the tray as it passes and place the dirty silver in a rinse bowl. S then shakes the loose food from the silver and places them in a silverware carrier which consists of containers for spoons, knives and forks respectively. When the containers are full, S takes the silverware tray to the dishloader, returns and repeats the task until all the trays are cleared or the work period ends.

	T's Verbal Cues		S's Actions
Steps		Steps	
1.	"Get the silverware rinse bowl."	1.	S secures a large metal bowl from the cart.
2.	"Squirt some soap into the bowl."	2.	S places the bowl in the sink, picks up the soap container from the counter and squirts an appropriate amount (in the judgment of T) into the bowl.
3.	"Turn on the hot water."	3.	S lifts the faucet handle up so that the hot water flows.
4.	"Check the temperature."	4.	S checks the temperature by placing one hand under the faucet while moving the handle with the other until the water is "hot" (in the judgment of T).
5.	"Fill the bowl."	5.	S places the bowl in the water flow until the bowl is filled to the appropriate level (in the judgment of T).
6.	"Turn off the water."	6.	S presses the faucet handle down so that the water ceases to flow.
7.	"Take the bowl to your work station."	7.	S takes the bowl to the work station and places it in the appropriate spot.
8.	"Get the silver carrier."	8.	S gets the silver carrier from the cart and places it in the appropriate spot in the work area. S adds containers to the carrier if necessary.
9.	"Get extra silver containers."	9.	S gets extra containers from the shelf and puts them in the appropriate spots in the work area.
10.	"Start the top conveyor belt."	10.	S presses the appropriate conveyor belt start button.
11.	"Start the garbage disposal."	11.	S turns the garbage disposal lever on.
12.	"Clear the silver."	12.	S takes the silver off each tray as they pass on the conveyor.

Steps	T's Verbal Cues	Steps	S's Actions
13.	"Shake the silver."	13.	S places the silver in the soapy water, shakes the loose food off and then leaves the silver in the bowl.
14.	"Put the silver into the silver carrier."	14.	S picks out a handful of knives and places them in the knife container. S repeats the action with spoons and forks.
15.	"Take the silver carrier to the dishloader."	15.	S takes the silver carrier when full (in the judgment of T) to the person loading dishes.
16.	T repeats cues 12-15 until all trays are cleared or the work period ends.	16.	S repeats actions 12-15 until all trays are cleared or the work period ends.

Component B

Teaching Ss to prepare bowls to be placed in a dishwashing machine.

Work Station B consists of a top conveyor belt which carries trays from Work Station A. S clears the bowls from the trays as they pass and scrapes excess food from the bowl into a trough of running water that flows to the garbage disposal. After scraping the bowl clean, S rinses the bowl in soapy water, and stacks it on a plastic tray. When the tray is full, S places the tray onto the bottom conveyor belt which carries the bowls to the dishloader person or object. S repeats these tasks until all available trays are cleared or the work period ends.

	T's Verbal Cues		S's Actions
Steps		Steps	
1.	"Get the rinse bowl for the bowls."	1.	S gets a large metal bowl from the shelf.
2.	"Squirt some soap into the bowl."	2.	S places the bowl in the sink, picks up the soap container from the counter and squirts an appropriate amount (in the judgment of T) into the bowl.
3.	"Turn on the hot water."	3.	S lifts the faucet handle up so that the water flows.
4.	"Check the temperature."	4.	S checks the temperature by placing one hand under the faucet while moving the handle with the other until the water is "hot" (in the judgment of T).
5.	"Fill the bowl."	5.	S lets the water run until the bowl is filled to the appropriate level (in the judgment of T).
6.	"Turn off the water."	6.	S presses the faucet handle down so that the water ceases to flow.
7.	"Take the bowl to the work station."	7.	S takes the bowl to the work station and places it in the appropriate spot.
8.	"Get a plastic tray."	8.	S secures a plastic tray from the cart and places it in the appropriate spot in the work area.
9.	"Get a scraper."	9.	S secures a scraper from the shelf and places it in the appropriate spot in the work area.
10.	"Clear the bowls."	10.	S takes all the bowls off each tray as they pass.
11.	"Scrape the bowls."	11.	S picks up a scraper and a bowl and scrapes (one motion top to bottom) excess food into the trough.
12.	"Rinse the bowls."	12.	S rinses the bowl in the soapy water.

Steps	T' Verbal Cues	Steps	S's Actions
13.	"Stack the bowls."	13.	S stacks the bowl on the plastic tray.
14.	"Put the tray on the conveyor.	14.	S places the tray when full (in the judgment of T) on the bottom conveyor belt.
15.	T repeats cues 10-14 until all the trays are put on the conveyor or the work period ends.	15.	S repeats actions 10-14 until all trays are cleaned or the work period ends.

Component C

Teaching Ss to prepare plates to be placed in the dishwashing machine.

Work Station C consists of a bop conveyor belt which carries trays from Work Station B. S is required to clear the dishes from the trays as they pass and scrape the excess food from the plate onto a trough of running water that flows into a garbage disposal. After scraping the plates S then stacks them on a plastic tray. When the tray is full (in the judgment of T) S places the tray full of plates on the bottom conveyor belt which carries the plates to the person loading dishes. S repeats this task until all the trays are cleared or the work period is over.

Steps	T's Verbal Cues	Steps	S's Actions
1.	"Get the plastic tray."	1.	S secures a plastic tray from the cart and places it in the appropriate spot in the work station.
2.	"Get a scraper."	2.	S secures a scraper from the shelf and places it in the appropriate spot in the work station.

Steps	T's Verbal Cues	Steps	S's Actions
3.	"Clear the plates."	3.	S takes the plates off each tray as they pass.
4.	"Scrape the plate."	4.	S picks up a scraper and scrapes (one motion top to bottom) the excess food into the trough.
5.	"Stack the plates."	5.	S stacks the plates on a plastic tray on the counter.
6.	"Clear the paper."	6.	S clears the paper off each tray and places it in the paper receptacle.
7.	"Clear the trays."	7.	S takes the plastic trays off the top conveyor belt and stacks them on the counter.
8.	"Put the trays on the conveyor."	8.	S places a full load (in the judgment of T) of trays on the bottom conveyor belt.
9.	T repeats cues 1-8 until all the trays are cleared or the work period ends.	9.	S repeats actions 1-8 until all the trays are cleared or the work period ends.

Component D

Teaching Ss to load dishes into the dishwashing machine.

Work Area D consists of the bottom conveyor belt which carries bowls, plates, and trays to the dishloader. S is required to load the dishes to be cleaned until all the dishes are loaded or the work period ends.

Steps	T's Verbal Cues	Steps	S's Actions
1.	"Load the big trays."	1.	S places the large metal trays face down on the dishwashing machine.
2.	"Load the plastic trays."	2.	S places one tray sideways in each space between the prongs.

Steps	T's Verbal Cues	Steps	S's Actions
3.	"Load the silver."	3.	S places one silver carrier in the middle of the dishwashing machine.
4.	"Load the bowls.	4.	S places the bowl trays close together and face down on the prongs.
5.	"Load the dishes.	5.	S places two dishes in a parallel line every other space between the prongs.

Component E

Teaching Ss to remove the dishes from the dishwashing machine and to stack the dishes appropriately.

Work Area E consists of the dishwashing machine from which clean dishes are received, a cart on which to stack bowls, a cart on which to stack trays, a cart on which to stack plates, and a silver shelf. S is required to remove the clean dishes from the dishwashing machine and stack them in the appropriate places.

Steps	T's Verbal Cues	Steps	S's Actions
1.	"Stack the trays."	1.	S removes trays from the dishwashing machine and stacks them on the appropriate cart.
2.	"Stack the bowls."	2.	S removes trays from the dishwashing machine and stacks them on the appropriate cart.
3.	"Stack the plates."	3.	S removes plates from the dishwashing machine and stacks them on the appropriate cart.
4.	"Put away the silver."	4.	S removes the silver carrier from the dishwashing machine and places it on the silver shelf.
5.	T repeats cues 1-4 until all the dishes are stacked or the work period ends.	5.	S repeats responses 1-4 until all the dishes are stacked or the work period ends.

Part 3 - Teaching Ss to perform each of the actions required in Parts 1 and 2 without cues from T except for the work supervisors work area assignment.

This part is essentially the same as Part 2 except that each of the five component skills are integrated into an uninterrupted response chain which is initiated by S's reactions to the task, rather than T's verbal cues. To eliminate unnecessary redundancy, the five component skills are not reiterated for this part. A gradual fading procedure was used to withdraw T's cues.

Phase III: Teaching Ss to arrange for the operation of and to operate an automatic commercial dishwashing machine in a public cafeteria.

In Phase III, Part 1, T provided individual instruction for each S. When S and T met at a bus stop, S was taught to walk 1/4 mile to the cafeteria entrance, walk to the work area, put away various nonwork-related items and take a position in the work area.[4]

Part 1 - Teaching Ss to prepare to operate the dishwashing machine.

T's Verbal Cues		S's Actions	
Steps		Steps	
1.	"Go to work."	1.	S walks down the sidewalk in the direction of the work facility.
2.	"Go to the work area."	2.	S enters the work facility and walks to the work area.
3.	"Put away your things."	3.	S puts away various nonwork-related items he has brought (e.g., hangs up coat, puts away lunch, radio).
4.	"Go to the window."	4.	S takes a position at the service window.

Part 2 - Teaching Ss to perform each component of a five component dishwashing task in response to verbal cues from T.

In Phase III, Part 2, T provided individual instruction for each S. The work area consisted of a service window through which trays were passed from the cafeteria. S was required to clear the trays using the garbage disposal and appropriate racks, wash the items, put them away, and clean up the work area.[5]

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[4] For a more detailed description of the task the reader is referred to the Work Area Model B presented in Appendix C.

[5] For a more detailed description of the task the reader is referred to the Work Area Model P presented in Appendix C.

Component A

Teaching Ss to prepare silverware, glasses, cups, coffee pots, tulip cups, tea servers, plates, bowls, salad dishes and trays to be placed in the dishwashing machine.[6]

Steps	T's Verbal Cues	Steps	S's Actions
1.	"Get the silverware rinse bowl."	1.	S secures a large metal bowl from the sink.
2.	"Pour some soap into the bowl."	2.	S picks up the soap container from the shelf and pours an appropriate amount (in the judgment of T) in the bowl.
3.	"Turn on the hot water."	3.	S turns the handle labeled "H" to the right so that hot water flows.
4.	"Check the temperature."	4.	S checks the temperature by placing one hand under the faucet while moving the handle with the other until the water is "hot" (in the judgment of T).
5.	"Fill the bowl."	5.	S places the bowl in the water flow until the bowl is filled to the appropriate
6.	"Turn off the water."	6.	S turns the handle labeled "H" to the left so that the water flow ceases.
7.	"Put the bowl next to the window."	7.	S places the bowl to the left of the service window.
8.	"Get the silver carrier."	8.	S gets the silver carrier from the shelf and places it next to the silverware rinse bowl.

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[6] It should be noted that the action is the same for glasses, cups, coffee pots, tulip cups and tea servers in the first category and plates, bowls, salad dishes and trays in the second. The teaching procedures presented here for glasses are the same for the entire category with the exception of the verbal cue (e.g., "glass" changed to "cup"). The teaching procedures for plates are the same for the entire second category, similarly the verbal cue changes.

Steps	T's Verbal Cues	Steps	S's Actions
9.	"Get a rack with prongs."	9.	S secures a rack with prongs and places it to the right of the garbage disposal.
10.	" Get a flat rack."	10.	S secures a flat rack and places it to the right of the garbage disposal.
11.	"Clear the silver."	11.	S takes the silver off the tray in the service window.
12.	"Shake the silver."	12.	S places the silver in the soapy water, shakes the loose food off and then leaves the silver in the bowl.
13.	"Put the silver in the silver carrier."	13.	S picks out a handful of knives and places them in the knife section of the carrier. S repeats the action with forks, spoons and soup spoons.
14.	"Put the silver carrier in the flat rack."	14.	S puts the silver carrier (when full in the judgment of T) in the rack.
15.	"Clear the glasses."	15.	S takes the glassess off the tray.
16.	"Empty the glasses."	16.	S empties the glass into the garbage disposal.
17.	"Rack the glasses."	17.	S places the glass upside down in the flat rack.
18.	"Clear the plates."	18.	S takes the plate off the tray.
19.	"Rinse the plates."	19.	S holds the plate in one hand and operates the rinse faucet by squeezing with the other hand so that the spray rinses the food off the plate into the garbage disposal.
20.	"Rack the plates."	20.	S places the plate in rack with prongs.
21.	"Turn on the garbage disposal."	21.	S turns the garbage disposal switch to ON.

Steps	T's Verbal Cues	Steps	S's Actions
22.	"Turn off the garbage disposal."	22.	When the garbage is shredded (in the judgment of T) S turns the garbage disposal to OFF.
23.	Repeats cue 9-14 until all trays are cleared or the work period ends.	23.	S repeats actions 11-14 until all trays are cleared or the work period ends.

Component B

Teaching Ss to operate the dishwashing machine.

Steps	T's Verbal Cues	Steps	S's Actions
1.	"Open the drain."	1.	S pushes the drain lever to "open."
2.	"Close the drain."	2.	When no water is flowing from the drain, S pulls the drain lever to "closed."
3.	"Turn on the rinse water valve."	3.	S turns the rinse water valve all the way out.
4.	"Turn off the rinse water valve."	4.	When water begins flowing from the drain, S turns the rinse water valve all the way in.
5.	"Fill the soap dish" (if buzzer sounds). T repeats the cue if buzzer sounds.	5.	S secures the measuring cup, fills the cup with soap, and then pours the soap into the soap container. S repeats the action if buzzer sounds.
6.	"Open the door."	6.	S pushes up on the dishwashing machine door handle so that the door opens.
7.	"Put the rack in the machine."	7.	S pushes the rack into the machine.
8.	"Close the door."	8.	S pushes down on the dishwashing machine door handle so that the door closes.
9.	"Turn on the machine."	9.	S presses the start button.

Steps	T's Verbal Cues	Steps	S's Actions
10.	"Open the door."	10.	When the red light above the start button goes off, S pushes up on the dishwashing machine door handle so that the door opens.
11.	"Take the rack out of the machine."	11.	S pulls the rack out of the dishwashing machine.

Component C

Teaching Ss to stack the items that have been washed.

Steps	T's Verbal Cues	Steps	S's Actions
1.	"Put away the coffee pots."	1.	S removes the coffee pots from the rack and places them on the shelf.
2.	"Put away the tea servers."	2.	S removes the tea servers from the rack and places them on the shelf.
3.	"Put away the glasses."	3.	S removes the glasses from the rack and places them in the bin.
4.	"Put away the cups."	4.	S removes the cups from the rack and places them in the cup bin.
5.	"Put away the tulip cups."	5.	S removes the tulip cups from the rack and places them on the shelf.
6.	"Put away the plates."	6.	S removes the plates from the rack and places them on the shelf.
7.	"Put away the bowls."	7.	S removes the bowls from the rack and places them on the shelf.
8.	"Put away the salad dishes."	8.	S removes the salad dishes from the rack and places them on the shelf.
9.	"Put away the trays."	9.	S removes the trays from the rack and places them on the counter in the cafeteria.

Steps	T's Verbal Cues	Steps	S's Actions
10.	"Put away the silver."	10.	When the silver is dry, S picks out a handful of knives and places them in the silverware tray. S repeats the action for forks, spoons, and soup spoons.

Component D

Teaching Ss to carry needed items from the work area to the cafeteria.

Steps	T's Verbal Cues	Steps	S's Actions
1.	"Take the cups to the cafeteria."	1.	S carries the cups to the cafeteria and stacks the cup bin next to the coffee vendor, returning with the empty bin as a replacement.
2.	"Take the glasses to the cafeteria."	2.	S carries the glasses to the cafeteria and stacks the glass bin next to the ice water vendor, returning with the empty bin as a replacement.
3.	"Stack the trays."	3.	S removes the trays from the counter and stacks them next to the counter.
4.	"Take the silver to the cafeteria."	4.	S takes the silverware tray to the cafeteria and fills the cafeteria silverware tray, placing knives, forks, spoons, and soup spoons in the appropriate sections. S returns the silverware tray to the shelf.
5.	"Take the utensils to the cafeteria."	5.	S takes the utensil tray to the cafeteria. Utensils such as kitchen knives, ladles, spatulas, mixers, etc. are placed in the drawer under the counter. Tea servers are placed next to the hot water vendor.

Component E

Teaching Ss to clean up the work area.

Steps	T's Verbal Cues	Steps	S's Actions
1.	"Get a clean rag."	1.	*S* secures a clean rag from the box under the sink.
2.	"Rinse the work area."	2.	*S* turns on the rinse faucet and sprays water from the service window on the left to the dishwashing machine on the right.
3.	"Turn off the rinse faucet."	3.	*S* turns off the rinse faucet.
4.	"Wipe off the work area."	4.	*S* wipes the work area with left to right strokes from the service window to the dishwashing machine so that all metal is wiped and the excess water runs into the garbage disposal or the sink.

Part 3 - Teaching Ss to perform each of the actions required in Parts 1 and 2 without cues from T.

This part is essentially the same as Part 2 except that each of the five individual component skills are integrated into an uninterrupted response chain which is initiated by *S*'s reactions to the task, rather than *T*'s verbal cues. To eliminate unnecessary redundancy, the five component skills are not reiterated for this part. A gradual fading procedure was used to withdraw *T*'s cues.

CHAPTER III

METHODOLOGY

Students[1]

The seven Ss (i.e., S_1, S_2, S_3, S_4, S_5, S_6, S_7) ranged in chronological age (CA) from 18 years, 1 month to 21 years, 7 months ($\bar{X}$ CA = 20.2). IQ scores ranged from "not measured" to 94 ($\bar{X}$ IQ = 44). Ss' medical records listed such medical diagnoses as: pre-natal brain injury, no-functional hearing, central receptive aphasia secondary to brain damage, Down's Syndrome, congenital heart defect, pharyngitis, otitis and asthma in infancy and unknown etiology. Psychological descriptors included: skills seem to be commensurate with his ability; poor gross motor coordination; poor fine motor skills; works very slowly; lacks the necessary judgement to make adequate decisions to organize work tasks, attempt solutions to job problems, and to set simple standards for jobs; and demonstrates no functional academic abilities in a work setting. Ss were enrolled in the Madison Wisconsin Public Schools in a self contained class for trainable level mentally retarded students in a self contained school for moderate through profoundly handicapped Ss.

Instructional Materials and Arrangement

Phase I: Teaching Ss to arrange for the operation of and to operate an automatic commercial dishwashing machine in a public high school.

- Part 1 - Teaching Ss to enter the physical facility and prepare for work.
- Part 2 - Teaching Ss to perform each component of a six component dishwashing task in response to verbal cues provided by the teacher.
- Part 3 - Teaching Ss to perform each component of a six component dishwashing task without verbal cues from the teacher.

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[1] For a more detailed description of students see Appendix A.

Materials

The following materials were used in Phase I, Part 1, Part 2 and Part 3: bowls, plates, metal trays, plastic trays, silver-knives, forks and spoons, commercial dishwashing machine and work area, pans, soap, water, scrapers, silver carriers, rags.

Arrangement

Six Ss were stationed in the various work areas (see Appendix B for a more detailed description of the work area).

Phase II: Same as Phase I.

Phase III: Teaching Ss to arrange for the operation of and to operate an automatic commercial dishwashing machine in a public cafeteria.

Part 1 - Teaching Ss to enter the work facility and prepare for work.

Part 2 - Teaching Ss to perform each component of a five component dishwashing task in response to verbal cues from T.

Part 3 - Teaching Ss to perform each component of a five component dishwashing task without verbal cues from T.

Materials

The following materials were used in Phase III, Parts 1, 2 and 3: racks, soap, plates, trays, silver carrier, prong racks. flat rack, coffee pots, bowls, silver, trays, tulip cups, utensils, rags, rinse bowl, tea server, salad bowls, pans, commercial dishwashing machine and work area.

Arrangement

Ss worked in a public cafeteria (for a more detailed description of the work area see Appendix C).

Trial and Criterion Specifications

Phase I, Parts 1, 2, and 3; Phase II, Parts 1, 2, and 3; and Phase III, Parts 1, 2, and 3, were taught successively. However, Components A-F of Phase I, Parts 2 and 3; Components A-E of Phase II, Parts 2 and 3; and Components A-E of Phase III, Parts 2 and 3 were not necessarily taught in order, since the task requires the components to be performed concurrently and the actions required in one component are independent of the actions required in other components. T recorded each S's performance of each action in each step[2] in each component, until each S performed each action correctly on two consecutive occasions. A trial consisted of a student performing all the actions required in each step of each component in sequence. Two consecutive trials in which an S performed all the actions required in each step of each component correctly was considered criterion for Phase I, Parts 1, 2, and 3, Components A-F; Phase II, Parts 1, 2, and 3, Components A-E; and Phase III, Parts 1, 2, and 3, Components A-E.

When each S performed all the actions required in each step of each component correctly in two consecutive trials, the performance of each S was assessed in sessions rather than in trials. A period of five minutes during which the teacher recorded the Ss' incorrect actions and intervened with the prescribed teaching procedures constituted a session. Criterion for Phase I, Parts 2 and 3, Components A-E; Phase II, Parts 2 and 3, Components A-E; and Phase III, Parts 2 and 3, Components A-C, was met when each student performed at competitive rates with no incorrect actions or teacher intervention for two consecutive sessions.

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[2] The word "step" refers to T's verbal cues and S's actions numerically listed for each part of the task analysis. Refer to the section, Program Design and Task Analysis, for a detailed listing of all the steps associated with each part.

Measurement Design

Measurements of S actions were observed under the constraints of the design schematically outlined below.

Phase I

Part 1

Steps 1-4 (trials to criterion)

Part 2

Component A

Steps 1-15 (trials to criterion)
Steps 12-15 (sessions to criterion)

Component B

Steps 1-14 (trials to criterion)
Steps 10-14 (sessions to criterion)

Component C

Steps 1-8 (trials to criterion)
Steps 3-8 (sessions to criterion)

Component D

Steps 1-24 (trials to criterion)
Steps 20-24 (sessions to criterion)

Component E

Steps 1-4 (trials to criterion)
Steps 1-4 (sessions to criterion)

Component F

Steps 1-25 (trials to criterion)

Part 3 (Same as Part 2)

Phase II

Part 1

Steps 1-4 (trials to criterion)

Part 2

Component A

Steps 1-15 (trials to criterion)
Steps 12-15 (sessions to criterion)

Component B

Steps 1-14 (trials to criterion)
Steps 10-14 (sessions to criterion)

Component C

Steps 1-8 (trials to criterion)
Steps 3-8 (sessions to criterion)

Component D

Steps 1-5 (trials to criterion)
Steps 1-5 (sessions to criterion)

Component E

Steps 1-4 (trials to criterion)
Steps 1-4 (sessions to criterion)

Part 3 (Same as Part 2)

Phase III

Part 1

Steps 1-4 (trials to criterion)

Part 2

Component A

Steps 1-22 (trials to criterion)
Steps 9-22 (sessions to criterion)

Component B

Steps 1-11 (trials to criterion)
Steps 6-11 (sessions to criterion)

Component C

Steps 1-10 (trials to criterion)
Steps 1-10 (sessions to criterion)

Component D

Steps 1-5 (trials to criterion)

Component E

Steps 1-5 (trials to criterion)

Part 3 (Same as Part 2)

Teaching Procedures

Phase I: Teaching Ss to arrange for the operation of and to operate an automatic commercial dishwashing machine in a public high school.

Part 1 - Teaching Ss to enter the physical plant and prepare for the dishwashing task in the work area.

Step 1 - When S and T were standing at a corner bus stop, T said to S, "Cross the street." If S responded correctly, T presented the cues required to perform the actions in Step 2. If S responded incorrectly, T repeated the cue, "Cross the street." If S responded correctly, T presented the cues required to perform the actions in Step 2. If S still responded incorrectly, T repeated the cue, "Cross the street," and modeled the correct action. If S imitated the action, T presented the cues required to perform the actions in Step 2. If S still responded incorrectly, T repeated the cue, "Cross the street" and physically guided (primed) S through the correct action.

These procedures were followed until each S crossed the street appropriately in response to the verbal cue presented by T on two consecutive occasions.

It should be noted that all five Ss were present at the bus stop, but that only one S at a time was provided instruction while the remaining Ss watched.

The teaching procedures used to teach the actions required in Part 1, Steps 2-5 were the same as those used to teach the actions required in Step 1 with the exception that different verbal cues were presented and different actions were required.

Part 2 - Teaching Ss to perform each component of a five component dishwashing task.

Component A - Teaching Ss to prepare silverware to be placed in a dishwashing machine.

Step 1 - When an S stood in Work Station A in response to T's verbal cue (see Phase I, Part 1, Step 5), T said, "Get the silverware rinse bowl." If S responded correctly, T presented the cues required to perform the actions in Step 2. If S responded incorrectly, T repeated the cue, "Get the silverware rinse bowl." If S responded correctly, T presented the cues required to perform the action in Step 2. If S still responded incorrectly, T repeated the cue, "Get the silverware rinse bowl," and modeled the correct action. If S imitated the action, T presented the cues required to perform the actions in Step 2. If S still responded incorrectly, T repeated the cue, "Get the silverware rinse bowl," and physically guided (primed) S through the correct action.

These procedures were followed until each S could secure the silverware rinse bowl correctly in response to the verbal cue presented by T on two consecutive occasions. The teaching procedures used to teach the skills required in Component A, Steps 2-16 and all the steps of Components B-F were the same as those used to teach the actions required in Step 1 with the exception that different verbal cues were presented and different actions were required.

Part 3 - Teaching Ss to perform each of the actions required in Parts 1 and 2 without cues from T except for work area assignments (Phase I, Part 1, Step 5).

When each S walked from the bus stop to the work area, put away various nonwork-related items, went to the work station assigned and began working T intervened with the teaching procedures described in Parts 1 and 2 only if an S performed an action incorrectly. These procedures were followed until each S secured the silverware rinse bowl correctly in response to the cues presented in the work area without verbal cues from T on two consecutive occasions. Different situational cues elicited appropriate beginning work actions or interventions by T, i.e., the procedures described in Phase I, Part 2, Step 1.

Phase II: Teaching Ss to arrange for the operation of and to operate an automatic commercial dishwashing machine in a public high school under the supervision of regular employees and the regular cafeteria supervisor.

Part 1 - Teaching Ss to enter the physical plant and prepare for the dishwashing task in the work area.

Step 1 - When S and T were standing at a corner bus stop, T said to S, "Cross the street." If S responded correctly T presented the cues required to perform the actions in Step 2. If S responded incorrectly, T repeated the cue, "Cross the street." If S still responded incorrectly, T repeated the cue, "Cross the street," and modeled the correct action. If S imitated the action, T presented the cue required to perform the actions in Step 2. If S still responded incorrectly, T repeated the cue, "Cross the street" and physically guided (primed) S through the correct action.

These procedures were followed until each S crossed the street appropriately in response to a verbal cue presented by T on two consecutive occasions.

It should be noted that only one S was present at the bus stop. The teaching procedures used to teach the actions required in Part 1, Steps 2-5 were the same as those used to teach the actions required in Step 1 with the exception that different verbal cues were presented and different actions were required.

Part 2 - Teaching Ss to perform each component of a five component dishwashing task.

Component A - Teaching Ss to prepare silverware to be placed in a dishwashing machine.

Step 1 - When S stood in Work Station A in response to the Work supervisor's verbal cues (see Phase I, Part 1, Step 5) T said, "Get the silverware rinse bowl." If S responded correctly, T presented the cues required to perform the actions in Step 2. If S responded incorrectly, T repeated the cue, "Get the silverware rinse bowl." If S still responded incorrectly, T repeated the cue, "Get the silverware rinse bowl" and modeled the correct action. If S still responded incorrectly T repeated the cue, "Get the silverware rinse bowl" and physically guided (primed) S through the action.

These procedures were followed until each S could secure the silverware rinse bowl correctly in response to the verbal cue from T on two consecutive occasions.

The teaching procedures used to teach the skills required in Component A, Steps 2-16 and all the steps of Components B-E were the same as those used to teach the actions required in Step 1 with the exception that different actions were required.

Part 3 - Teaching Ss to perform each of the actions required in Parts 1 and 2 without cues from T except for the work supervisor's work area assignment (Phase I, Part 1, Step 5).

Phase III: Teaching Ss to arrange for the operation of and to operate an automatic commercial dishwashing machine in a cafeteria concession.

Part 1 - Teaching Ss to enter the physical plant and prepare for the dishwashing task in the work area.

Step 1 - When S and T were standing at a corner bus stop, T said to S, "Go to work." If S responded correctly, T presented the cues required to perform the actions in Step 2. If S responded incorrectly, T repeated the cue, "Go to work." If S responded correctly, T presented the cues required to perform the actions in Step 2. If S still responded incorrectly, T repeated the cue, "Go to work" and modeled the correct response. If S imitated the actions, T presented the cues required to perform the actions in Step 2. If S still responded incorrectly, T repeated the cue, "Go to work" and physically guided (primed) S through the correct action.

These procedures were followed until each S went to work appropriately in response to the verbal cue presented by T on two consecutive occasions.

It should be noted that each S received individual instruction. The teaching procedures used to teach the actions required in Phase III, Part 1, Steps 2-4 were the same as those used to teach the actions required in Part 1 with the exception that different verbal cues were presented and different actions were requried.

Part 2 - Teaching Ss to perform each component of a five component dishwashing task.

Component A - Teaching Ss to prepare silverware to be placed in a dishwasher.

Step 1 - When an S stood in the work area, T said, "Get a rack with prongs." If S responded correctly, T presented the cues required to perform the actions in Step 2. If S responded incorrectly, T repeated the cue, "Get a rack with prongs." If S responded correctly, T presented the cues required to perform the actions in Step 2. If S still responded incorrectly, T repeated the cue, "Get a rack with prongs" and modeled the correct action. If S imitated the action, T presented the cues required to perform the actions in Step 2. If S still responded incorrectly, T repeated the cue, "Get a rack with prongs" and physically guided (primed) S through the correct action.

These procedures were followed until S could secure the rack with prongs correctly in response to the verbal cue presented by T on two consecutive occasions.

It should be noted that each S received individual instruction. The teaching procedures used to teach the actions required in Phase III, Part 2, Component A, Steps 2-23 and all steps of Components B-E were the same as those used to teach the actions required in Step 1 with the exception that different verbal cues were presented and different actions were required.

Part 3 - Teaching Ss to perform each of the actions required in Parts 1 and 2 without cues from T.

When S walked from the bus stop to the Work Area, put away various nonwork-related items and began working, T intervened with the teaching procedures described in Parts 1 and 2 only if S could secure the rack with prongs correctly in response to the cues in the work area without verbal cues from T on two consecutive occasions. Different situational cues elicited appropriate beginning work actions or interventions by T, i.e., the procedures described in Phase III, Part 2, Step 1.

CHAPTER IV

RESULTS

In order to assist the reader in interpreting the results, some qualifications of the instructional design should be considered. Initially, it was intended in Phase I that each student was to be taught the dishwashing skills in a public high school under the supervision of the teacher. Subsequently, it was intended in Phase II that each student was to be taught the dishwashing skill while integrated with the regular employees in the actual work setting in the same public high school. Then it was intended in Phase III that each student was to be taught the dishwashing skills in a commercially operated cafeteria concession.

Unfortunately, this successive strategy could not be followed exactly due to, at least, the following reasons:

1. Time consuming procedures necessary to acquire the sanction and approval of all the involved parties, i.e., school administration, cafeteria workers, parental permission, and classroom teachers. Thus, the period of time available for the study, November through March, did not allow all students to enter Phase II, and the students described in Phase III were not trained in Phase II. However, training is planned to resume at the inception of the new school year.
2. The immediate vocational placement of a student (Phase III, $\underline{S}_7$) in a commercially operated cafeteria concession. In order to keep the use of this training site, this student, part of a previous pilot study, was placed immediately in the work facility described in Phase III.

3. Time limitations concerning the work facilities. The use of the work facility as a training site in Phase I required training to take place in off hours, or when the regular employees were not working. This limited the training time to periods of two hours duration twice weekly.
4. Other time demands on the teacher. The teacher also taught in several other vocational and pre-vocational training sites involving other public school students during the school week.

The results are reported in both a general and specific form. The general format is provided as an overall summary of the data from the various phases of the program. The specific format extends the utility of this information by presenting an approximation of the teaching time required and difficulty level of each particular part of the program. These data are represented by the total number of trials (or sessions) to criterion or the total number of correct responses per trial (or session) recorded for each student.

General Criterion Performance

Table 1 presents the criterion performance for each of the seven students in the program. Students 1-6 achieved criterion for all parts of Phase I. Students 4 and 5, also, achieved criterion for all parts of Phase II, and students 3 and 7 demonstrated criterion performance during Phase III (See Table 1).

Specific Criterion Performance

The data reported in this section detail the total number of trials (sessions) each student required in order to demonstrate criterion performance for each part of the three program phases. As such it depicts the information presented in Table 1 in a more specific form.

Phase I

As can be discerned from Table 2, students 1 through 6 required three teaching trials to attain criterion performance in Part 1.

In Part 2, Component A, these students required three to five teaching trials and two to three teaching sessions to attain criterion performance. Students 1 through 6 required two to three teaching trials and two teaching sessions to attain criterion performance for Component B. In Component C these students required two to four teaching trials and two teaching sessions to attain criterion performance. The six students required two to four teaching trials and two teaching sessions to attain criterion performance on Component D. In Component E students 1 through 6 required two to three teaching trials and two to three teaching sessions to attain criterion performance. The six students required from two to four teaching trials to attain criterion performance on Component F.

In Part 3, Component A, all six students required two teaching trials and two teaching sessions to attain criterion performance. Students 1 through 6 required two teaching trials and two teaching sessions to attain criterion performance on Component B. In Component C these students required two teaching trials and two teaching sessions to attain criterion performance. Students 1 through 6 required two to three teaching trials and two teaching sessions to attain criterion performance in Component D. In Component E the six students required two teaching trials and two teaching sessions to attain criterion performance. Students 1 through 6 required from two to four teaching trials to attain criterion performance on Component F.

Phase II

As can be discerned from Table 3, students 4 and 5 required two teaching trials to attain criterion performance in Part 1.

In Parts 2 and 3, Component A-E both students needed only two teaching trials and two teaching sessions to attain criterion performance.

Phase III

As can be discerned from Table 4, students 3 and 7 required two teaching trials to attain criterion performance in Part 1.

In Part 2, Component A, both students required from three to four teaching trials and two teaching sessions to attain criterion performance. Students 3 and 7 required two teaching trials and two teaching sessions to attain criterion performance on Component B. In Component C, both students required two to three teaching trials and two teaching sessions to attain criterion performance. Students 3 and 7 required three to four teaching trials to attain criterion performance in Component D. Two to three teaching trials were required by the students to attain criterion performance on Component E.

In Part 3, both students attained criterion performance in Components A-E in two teaching trials and two teaching sessions.

Specific Trial (Session) Performance

The data presented in this section correspond to the total number of correct responses performed by each student across the parts of the various phases. These data are reported by individual trials (sessions) for each part of the program. This section represents the final breakdown in terms of specificity of the data presented in this chapter. Since these data are listed in a detailed form in each of the tables in this section, the narrative will focus upon highlighting general trends.

Phase I

Inspection of Tables 5 through 10 shows that Parts 1 and 2 of Phase I required more trials (sessions) to achieve criterion than Part 3. With the exception of one or two components (these components varied per student), criterion was demonstrated on the first two required trials of Part 3.

Phase II

Inspection of Tables 11 and 12 for students 4 and 5, respectively, shows that Part 1 required more teaching trials than Parts 2 and 3. Both students reached criterion within the first two trials of Parts 2 and 3.

Phase III

Inspection of Tables 13 and 14 for students 3 and 7, respectively, shows that Part 2 required more teaching trials than Parts 1 and 3. Both students reached criterion within the first two trials of Parts 1 and 3.

TABLE 1

SUMMARY OF STUDENTS CRITERION PERFORMANCE ACROSS PHASES I, II AND III

	PHASE I			PHASE II			PHASE III		
	PARTS			PARTS			PARTS		
	1	2	3	1	2	3	1	2	3
S_1	X	X	X						
S_2	X	X	X						
S_3	X	X	X				X	X	X
S_4	X	X	X	X	X	X			
S_5	X	X	X	X	X	X			
S_6	X	X	X						
S_7							X	X	X

TABLE 2

TOTAL TEACHING TRIALS (SESSIONS) REQUIRED FOR CRITERION PERFORMANCE: PHASE I; PARTS 1, 2, and 3; COMPONENTS A-F

PHASE I																								
	Part 1	Part 2											Part 3											
Students	Components	Components											Components											
	A_x	A_x	A_y	B_x	B_y	C_x	C_y	D_x	D_y	E_x	E_y	F_x	1_x	A_x	A_y	B_x	B_y	C_x	C_y	D_x	D_y	E_x	E_y	F_x
$\underline{S}_1$	3	5	3	3	2	2	2	3	2	2	3	3	2	2	2	2	2	2	2	2	2	2	2	3
$\underline{S}_2$	3	3	2	3	2	3	2	3	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2
$\underline{S}_3$	3	3	2	3	2	3	2	3	2	2	2	3	2	2	2	2	2	2	2	3	2	2	2	2
$\underline{S}_4$	3	5	3	3	2	3	2	3	2	2	2	3	2	2	2	2	2	2	2	3	2	2	2	3
$\underline{S}_5$	3	4	2	3	2	3	2	3	2	3	2	3	2	2	2	2	2	2	2	2	2	2	2	2
$\underline{S}_6$	3	4	3	3	2	4	2	4	2	3	3	4	2	2	2	2	2	2	2	4	2	2	2	4

x - teaching trials to criterion

y - teaching sessions to criterion

TABLE 3

TOTAL TEACHING TRIALS (SESSIONS) REQUIRED FOR CRITERION PERFORMANCE: PHASE II; PARTS 1, 2 AND 3; COMPONENTS A-E

PHASE II																						
	Part 1	Part 2										Part 3										
Students	Components	Components										Components										
	A_x	A_x	A_y	B_x	B_y	C_x	C_y	D_x	D_y	E_x	E_y	1_x	A_x	A_y	B_x	B_y	C_x	C_y	D_x	D_y	E_x	E_y
S_4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
S_5	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

x - teaching trials to criterion

y - teaching sessions to criterion

TABLE 4

TOTAL TEACHING TRIALS (SESSIONS) REQUIRED FOR CRITERION PERFORMANCE: PHASE III; PARTS 1, 2 AND 3; COMPONENTS A-E

	PHASE III																		
	Part 1	Part 2								Part 3									
Students	Components	Components								Components									
	A_x	A_x	A_y	B_x	B_y	C_x	C_y	D_x	E_x	1_x	A_x	A_y	B_x	B_y	C_x	C_y	D_x	D_y	E_x
$\underline{S}_3$	2	4	2	2	2	3	2	4	2	2	2	2	2	2	2	2	2	2	2
$\underline{S}_7$	2	3	2	2	2	2	2	3	3	2	2	2	2	2	2	2	2	2	2

x - teaching trials to criterion

y - teaching sessions to criterion

TABLE 5

TOTAL CORRECT RESPONSES PERFORMED BY STUDENT 1 FOR EACH TRIAL (SESSION): PHASE I; PARTS 1, 2 AND 3; COMPONENTS A-F

$\underline{S}_1$ - PHASE I																								
	Part 1	Part 2											Part 3											
Trial$_x$/Session$_y$	Components	Components											Components											
	A_x	A_x	A_y	B_x	B_y	C_x	C_y	D_x	D_y	E_x	E_y	F_x	1_x	A_x	A_y	B_x	B_y	C_x	C_y	D_x	D_y	E_x	E_y	F_x
1	4	9	2	9	0	8	0	22	0	3	0	20	5	15	0	14	0	8	0	24	0	4	0	24
2	5	12	0	14	0	8	0	24	0	4	0	25	5	15	0	14	0	8	0	24	0	4	0	25
3	5	12	0	14				24		4		25												25
4		15																						
5		15																						

x - teaching trial to criterion

y - teaching session to criterion

The final numeral listed in each column for each part represents the total number of correct responses possible in any one trial (session). This convention is employed in all tables presented in this section.

TABLE 6

TOTAL CORRECT RESPONSES PERFORMED BY STUDENT 2 FOR EACH TRIAL (SESSION): PHASE I; PARTS 1, 2 AND 3; COMPONENTS A-F

$\underline{S}_2$ - PHASE I

Trial$_x$/Session$_y$	Part 1 Components	Part 2 Components											Part 3 Components											
	A_x	A_x	A_y	B_x	B_y	C_x	C_y	D_x	D_y	E_x	E_y	F_x	1_x	A_x	A_y	B_x	B_y	C_x	C_y	D_x	D_y	E_x	E_y	F_x
1	3	9	0	8	0	7	0	12	0	4	0	23	5	15	0	14	0	8	0	24	0	4	0	25
2	5	12	0	14	0	8	0	24	0	4	0	25	5	15	0	14	0	8	0	24	0	4	0	25
3	5	12		14		8		24				25												
4		15																						
5		15																						

x - teaching trials to criterion

y - teaching sessions to criterion

TABLE 7

TOTAL CORRECT RESPONSES PERFORMED BY STUDENT 3 FOR EACH TRIAL (SESSION): PHASE I; PARTS 1, 2 AND 3; COMPONENTS A-F

$\underline{S}_3$ - PHASE I																								
	Part 1_x	Part 2											Part 3											
Trial$_x$/Session$_y$	Components	Components											Components											
		A_x	A_y	B_x	B_y	C_x	C_y	D_x	D_y	E_x	E_y	F_x	1_x	A_x	A_y	B_x	B_y	C_x	C_y	D_x	D_y	E_x	E_y	F_x
1	4	12	0	12	0	6	0	16	0	4	0	22	5	15	0	14	0	8	0	22	0	4	0	25
2	5	15	0	14	0	8	0	24	0	4	0	25	5	15	0	14	0	8	0	24	0	4	0	25
3	5	15		14		8		24				25								24				

x - teaching trials to criterion

y - teaching sessions to criterion

TABLE 8

TOTAL CORRECT RESPONSES PERFORMED BY STUDENT 4 FOR EACH TRIAL (SESSION); PHASE I; PARTS 1, 2 AND 3; COMPONENTS A-F

$\underline{S}_4$ - PHASE I

	Part 1_x	Part 2											Part 3											
Trial$_x$/Session$_y$	Components	Components											Components											
		A_x	A_y	B_x	B_y	C_x	C_y	D_x	D_y	E_x	E_y	F_x	1_x	A_x	A_y	B_x	B_y	C_x	C_y	D_x	D_y	E_x	E_y	F_x
1	4	5	3	9	0	5	0	16	0	4	0	22	5	15	0	14	0	8	0	22	0	4	0	23
2	5	13	0	14	0	8	0	24	0	4	0	25	5	15	0	14	0	8	0	24	0	4	0	25
3	5	15	0	14		8		24				25								24				25
4		15																						

x - teaching trials to criterion

y - teaching sessions to criterion

TABLE 9

TOTAL CORRECT RESPONSES PERFORMED BY STUDENT 5 FOR EACH TRIAL (SESSION): PHASE I; PARTS 1, 2 AND 3; COMPONENTS A-F

$\underline{S}_5$ - PHASE I																								
	Part 1$_x$	Part 2											Part 3											
Trial$_x$/Session$_y$	Components	Components											Components											
		A_x	A_y	B_x	B_y	C_x	C_y	D_x	D_y	E_x	E_y	F_x	1_x	A_x	A_y	B_x	B_y	C_x	C_y	D_x	D_y	E_x	E_y	F_x
1	3	6	0	12	0	5	0	18	0	4	2	21	5	15	0	14	0	8	0	24	0	4	0	25
2	5	13	0	14	0	8	0	24	0	4	0	25	5	15	0	14	0	8	0	24	0	4	0	25
3	5	15		14		8		24			0	25												
4		15																						

x - teaching trials to criterion

y - teaching sessions to criterion

TABLE 10

TOTAL CORRECT RESPONSES PERFORMED BY STUDENT 6 FOR EACH TRIAL (SESSION): PHASE I; PARTS 1, 2 AND 3; COMPONENTS A-F

S_6 - PHASE I																								
	Part 1_x	Part 2											Part 3											
Trial$_x$/Session$_y$	Components	Components											Components											
		A_x	A_y	B_x	B_y	C_x	C_y	D_x	D_y	E_x	E_y	F_x	1_x	A_x	A_y	B_x	B_y	C_x	C_y	D_x	D_y	E_x	E_y	F_x
1	3	6	2	9	0	7	0	19	0	3	1	18	5	15	0	14	0	8	0	22	0	4	0	23
2	5	13	0	14	0	7	0	22	0	4	0	22	5	15	0	14	0	8	0	22	0	4	0	24
3	5	15	0	14		8		24		4	0	25								24				25
4		15				8		24				25								24				25
5																								

x - teaching trials to criterion

y - teaching sessions to criterion

TABLE 11

TOTAL CORRECT RESPONSES PERFORMED BY STUDENT 4 FOR EACH TRIAL (SESSION): PHASE II; PARTS 1, 2 AND 3; COMPONENTS A-E

$\underline{S}_4$ - PHASE II

	Part 1_x	Part 2										Part 3										
Trial$_x$/Session$_y$	Components	Components										Components										
		A_x	A_y	B_x	B_y	C_x	C_y	D_x	D_y	E_x	E_y	1_x	A_x	A_y	B_x	B_y	C_x	C_y	D_x	D_y	E_x	E_y
1	3	15	0	14	0	8	0	5	0	5	0	5	15	0	14	0	8	0	5	0	5	0
2	5	15	0	14	0	8	0	5	0	5	0	5	15	0	14	0	8	0	5	0	5	0
3	5																					

x - teaching trials to criterion

y - teaching sessions to criterion

TABLE 12

TOTAL CORRECT RESPONSES PERFORMED BY STUDENT 5 FOR EACH TRIAL (SESSION): PHASE II; PARTS 1, 2 AND 3; COMPONENTS A-E

S_5 - PHASE II																						
	Part 1_x	Part 2										Part 3										
$\text{Trial}_x/\text{Session}_y$	Components	Components										Components										
		A_x	A_y	B_x	B_y	C_x	C_y	D_x	D_y	E_x	E_y	1_x	A_x	A_y	B_x	B_y	C_x	C_y	D_x	D_y	E_x	E_y
1	3	15	0	14	0	8	0	5	0	5	0	5	15	0	14	0	8	0	5	0	5	0
2	5	15	0	14	0	8	0	5	0	5	0	5	15	0	14	0	8	0	5	0	5	0
3	5																					

x - teaching trials to criterion

y - teaching sessions to criterion

TABLE 13

TOTAL CORRECT RESPONSES PERFORMED BY STUDENT 3 FOR EACH TRIAL (SESSION): PHASE III; PARTS 1, 2 AND 3; COMPONENTS A-E

$\underline{S}_3$ - PHASE III																		
	Part 1_x	Part 2								Part 3								
$\text{Trial}_x/\text{Session}_y$	Components	Components								Components								
		A_x	A_y	B_x	B_y	C_x	C_y	D_x	E_x	1_x	A_x	A_y	B_x	B_y	C_x	C_y	D_x	E_x
1	4	17	0	11	0	9	0	2	4	5	22	0	11	0	10	0	5	5
2	4	21	0	11	0	10	0	5	5	5	22	0	11	0	10	0	5	
3		22				10		5	5									
4		22																

x - teaching trials to criterion

y - teaching sessions to criterion

TABLE 14

TOTAL CORRECT RESPONSES PERFORMED BY STUDENT 7 FOR EACH TRIAL (SESSION): PHASE III; PARTS 1, 2 AND 3; COMPONENTS A-E

$\underline{S}_7$ - PHASE III

	Part 1$_x$	Part 2								Part 3								
Trial$_x$/Session$_y$	Components	Components								Components								
		A_x	A_y	B_x	B_y	C_x	C_y	D_x	E_x	1_x	A_x	A_y	B_x	B_y	C_x	C_y	D_x	E_x
1	4	20	0	11	0	10	0	2	5	5	22	0	11	0	10	0	5	5
2	4	22	0	11	0	10	0	4	5	5	22	0	11	0	10	0	5	5
3		22						5										
4								5										

x - teaching trials to criterion

y - teaching sessions to criterion

CHAPTER V

DISCUSSION

Implications for Skill Acquisition

This program was implemented to teach severely handicapped students to function as dishwashers in simulated and natural work settings. It was designed to demonstrate dishwashing skill acquisition with severely handicapped students and utilized a task analysis and teaching procedure developed from utilizing the Job Skills Inventory. It can be concluded from the results presented that most of the severely handicapped students included in this investigation acquired the skills necessary to function as dishwashers in simulated work settings and some of those students also acquired the necessary skills in natural work settings. However, due to time and other practical constraints, cited in the results section, this demonstration does not extend across all seven students in the study.

Six of the students did acquire the skills necessary for simulated dishwashing at a public high school work setting (Phase I). In addition, students 4 and 5 acquired dishwashing skills in a public high school work setting when incorporated into a line task with nonhandicapped workers (Phase II). Finally, students 3 and 7 performed the various dishwashing skills at a private cafeteria under typical competitive employment conditions. Although it appears that the program can be used to teach competitive dishwashing skills to severely handicapped students, further implementation of the programmatic components of Phases II and III with additional students is considered necessary.

Implications for Job Skills Inventory

Since the components of the task were based upon information secured through the use of the Job Skills Inventory strategy (Belmore and Brown, in press), it appears tenable that this strategy can provide useful programmatic information which can facilitate the acquisition of vocational skills. A firm conclusion, though, is not possible within the constraints of the design of this investigation. In order to clearly assess the relative effectiveness of the inventory, a second procedure, generated through a different approach, would need to be employed concurrently with a second population. Based upon the results of this study it seems that the Job Skills Inventory strategy (Belmore and Brown, in press), is at least as useful as other currently employed job assessment techniques with severely handicapped students.

Implications for Instructional Sequence

The instructional sequence appears to be an efficient vehicle for teaching dishwashing at least with the students included in the study. Further investigations should include systematic collection of detailed information, as delineated on the Job Skills Inventory, on at least the following: identifying and utilizing natural incentives; developing high rate work behaviors while maintaining quality; increasing independent work behaviors; and increasing duration and frequency of work sessions.

Summary

In summary, it can be concluded that the incorporation of the information, isolated through the use of the Job Skills Inventory (Belmore and Brown, in press), into an instructional sequence utilizing a task analysis format represents in combination a potentially powerful approach to the instruction of viable vocational skills with severely handicapped students. The generality of this conclusion can only be extended through the use of this combined approach with additional severely handicapped students, and across different vocational tasks. It is the writer's contention that the results of this investigation indicate that such extensions are appropriate.

APPENDIX A

DETAILED DESCRIPTION OF STUDENTS

Student #1

History

A. Sex: Male

B. CA as of January, 1976: 18 years, 2 months

C. IQ: 42 (WISC - Full Scale)

D. Level of retardation: "...on the Wechsler (he) scored overall in the trainable range."

E. Medical Diagnosis: "Pre-natal brain injury"

F. Psychological descriptors: "severely retarded; noted problem in the area of speech; skills appear to be commensurate with his ability."

G. Placement history:

1. Natural home since birth.
2. Madison Public Schools since 1964.

Student #2

History

A. Sex: Male

B. CA as of January, 1976: 18 years, 1 month

C. IQ: 94 (Hiskey-Nebraska)

D. Level of retardation: Grade levels - PIAT

Mathematics	1.7	Reading Comprehension	2.0
Reading Recognition	1.5	Spelling	1.1

E. Medical Diagnosis: "Central receptive aphasia secondary to brain damage. Occasional suggestions of autistic behavior." "...one month old he developed meningitis and whooping cough. He had recurring otitis media throughout infancy and early childhood. He has a severe bilateral loss and no functional hearing. He was born with a unilateral cleft lip (repaired)."

F. Psychological descriptors: "...short term visual memory skills were poor. He evidenced poor gross motor coordination ... fine motor skills were poor ... he was hyperactive."

G. Placement history:

1. Natural home, 1958-1962
2. Various boarding homes since 1962
3. Madison Public Schools since 1962.

Student #3

History

A. Sex: Male

B. CA as of January, 1976: 21 years, 1 month

C. IQ: 48 (WISC - Full Scale)

D. Level of retardation: "moderate range of mental retardation."

E. Medical Diagnosis: "Down's Syndrome, congenital heart defect."

F. Psychological descriptors: "works very slowly ... trouble with all but the simplist, routine work assignments." "...lacks the necessary judgment to make adequate decisions to organize work tasks, attempt solutions to job problems, and to set simple standards for jobs." "...demonstrates no functional academic abilities in a work setting."

G. Placement history:

1. Natural home, 1954-1973

2. Group home since 1973
3. Columbia County Special Education, 1959-1973
4. Madison Public Schools since 1973

Student #4

History

A. Sex: Female

B. CA as of January, 1976: 21 years, 6 months

C. IQ: 42 (PPVT)

D. Level of retardation: MA 5.8 "recommend placement in a trainable class."

E. Medical Diagnosis: "Down's Syndrome," "hearing loss in left ear."

F. Psychological descriptors: "test results (Bender) indicate a possible neurological problem." "...does not have left to right progression firmly established. She can differentiate printed materials as to color form and shape. She cannot place angles or relate to figure background pictorial materials."

G. Placement history:

1. Natural home since birth.
2. Madison Public Schools since 1960.

Student #5

History

A. Sex: Female

B. CA as of January, 1976: 21 years, 7 months

C. IQ: 49 (WAIS)

D. Level of retardation: "functioning in the severely retarded range."

E. Medical Diagnosis: "Down's Syndrome" "chronic ear infections"

F. Psychological descriptors: "she did not understand most of the examiner's conversational questions well enough to respond to them. She is able to print some words, is relatively good in numbers and likes music."

G. Placement history:

  1. Natural home, 1955 to 1973
  2. Group home since 1973
  3. Dane County Special Education, 1960-1973
  4. Madison Public Schools since 1973.

Student #6

History

A. Sex: Male

B. CA as of January, 1976: 21 years, 0 months

C. IQ: 34 (Binet)

D. Level of retardation: "Upper limits of the severely retarded range."

E. Medical Diagnosis: "treated for repeated bouts of pharyngitis, otitis and asthma in infancy."

F. Psychological descriptors: "...very shy, slow moving, emotionally rather flat and depressed ..." "primary difficulty ... was that he had no confidence in himself."

G. Placement history:

  1. Natural home, 1955-1973
  2. Group home since 1973
  3. Madison Public Schools since 1959

Student #7

History

A. Sex: Male

B. CA as of January, 1976: 19 years, 6 months

C. IQ: VIQ not on norm

PIQ 55

FSIQ not on norm (WISC)

D. Level of retardation: "slightly above the trainable range."

E. Medical Diagnosis: Unknown etiology.

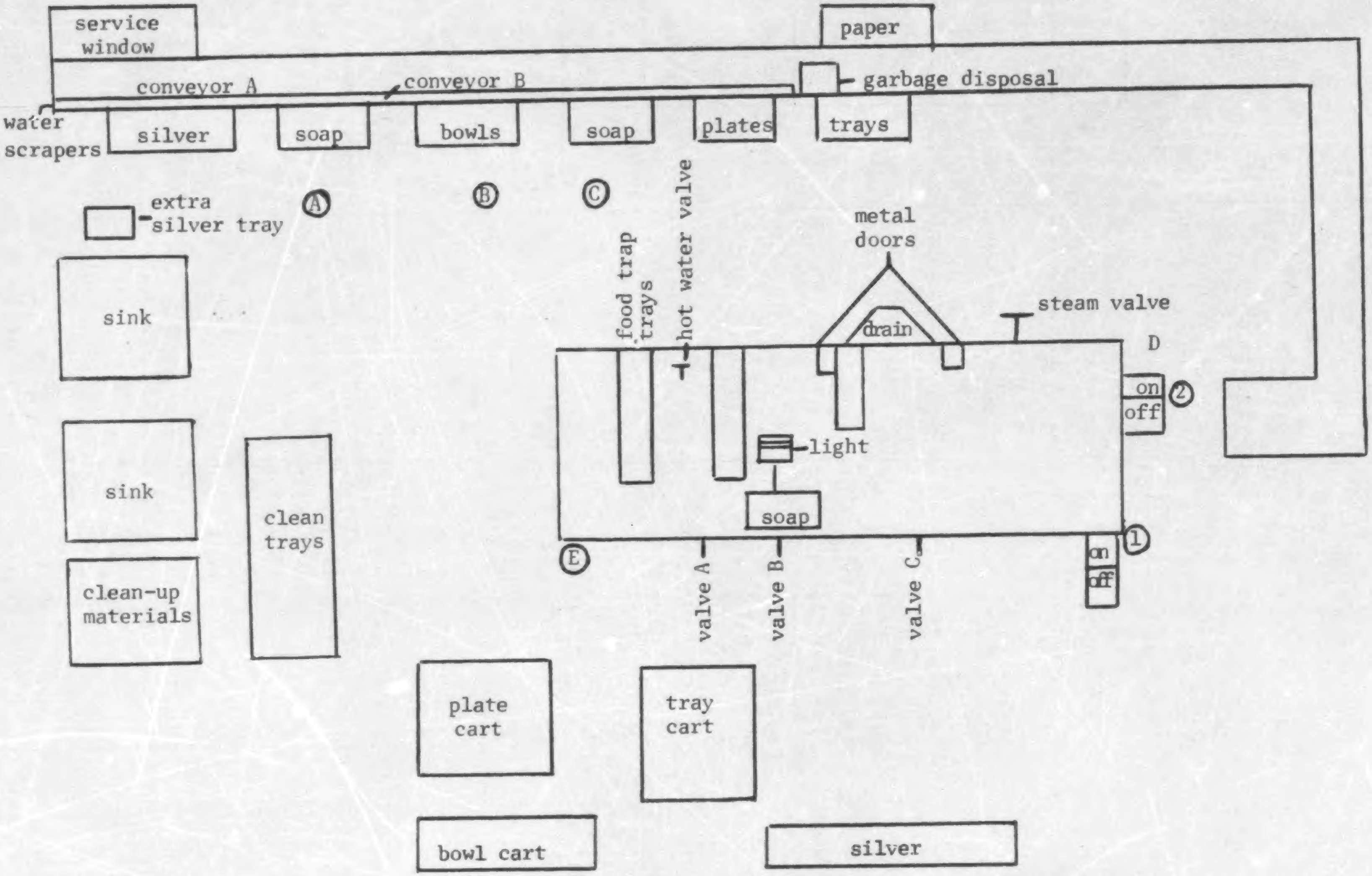
F. Psychological descriptors: "ungainly walk and poorly coordinate." "...would give a one-word answer ... no spontaneous speech." "If he was not sure of himself nor how to do whatever was asked of him, he would simply sit there with his head and eyes lowered."

G. Placement history:

1. Natural home, 1956-1973
2. Group home since 1973
3. Madison Public Schools since 1962.

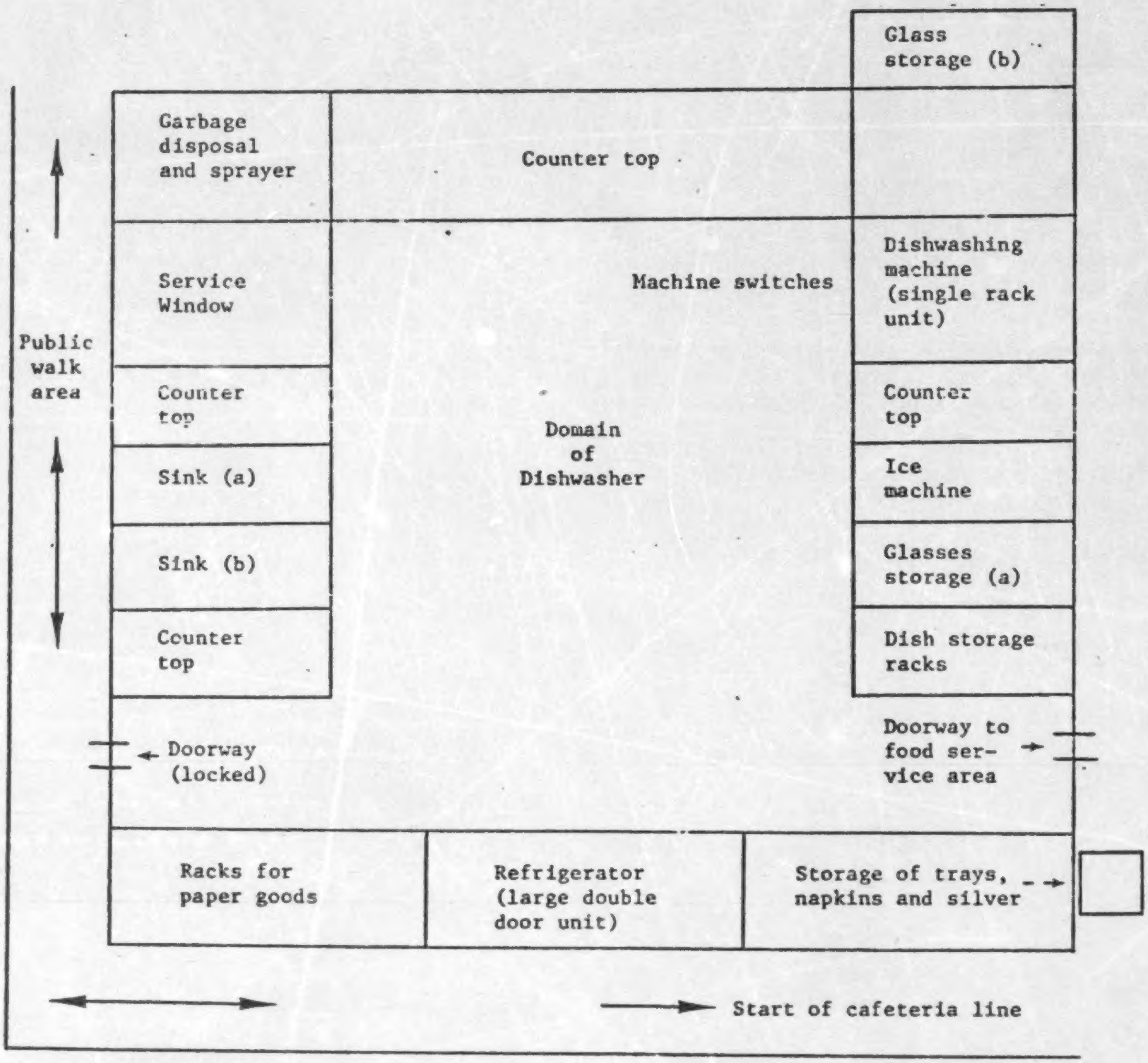
APPENDIX B

WORK AREA MODEL A



APPENDIX C

WORK AREA MODEL B



APPENDIX D

MATERIALS

Phase I, Parts 2 and 3; Phase II, Parts 2 and 3

bowls
plates
metal trays
plastic trays
silver-knives, forks, and spoons
commercial dishwashing machine and work area
pans
soap
water
scrapers
silver carriers
clean-up rags

Phase III, Parts 2 and 3

rack
soap
plates
trays
silver carrier
prong rack
flat rack
coffee pots
bowls
commercial dishwashing machine and work area
silver-knives, forks, and spoons
trays
tulip cups
utensils
rag
rinse bowl
tea server
salad bowls
pans

APPENDIX E

SAMPLE DATA SHEET: PHASE I, PART 1

Date ____________________ Name ____________________

t - correct m - model p - prime

Steps										
1. Cross street										
2. Go to cafeteria										
3. Go to work area										
4. Put away your things										
5. Work on silver										
6. Work on bowls										
7. Work on plates and trays										
8. Work on dish loading										
9. Work on stacking										

APPENDIX F

SAMPLE DATA SHEET: PHASE I, PART 2, COMPONENT A

Date ____________________ Name ______________________

t - correct m - model p - prime

Steps

1. Silverware rinse bowl										
2. Squirt soap										
3. Hot water										
4. Check temperature										
5. Fill bowl										
6. Turn off water										
7. Take bowl to W.S.										
8. Get silver carrier										
9. Extra silver containers										
10. Start top conveyor										
11. Start garbage disposal										
12. Clear Silver										
13. Shake silver										
14. Put silver in carrier										
15. Take to dish-loader										

APPENDIX G

SAMPLE DATA SHEET: PHASE I, PART 2, COMPONENT B

Date ____________________ Name ____________________

t - correct m - model p - prime

Steps										
1. Get rinse bowls										
2. Squirt soap										
3. Turn on hot water										
4. Check temperature										
5. Fill bowl										
6. Turn off water										
7. Take to W.S.										
8. Get plastic tray										
9. Get scraper										
10. Clear bowls										
11. Scrape bowls										
12. Rinse bowls										
13. Stack bowls										
14. Put tray on conveyor										

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